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# AMERICAN FRUIT GROWER MAGAZINE

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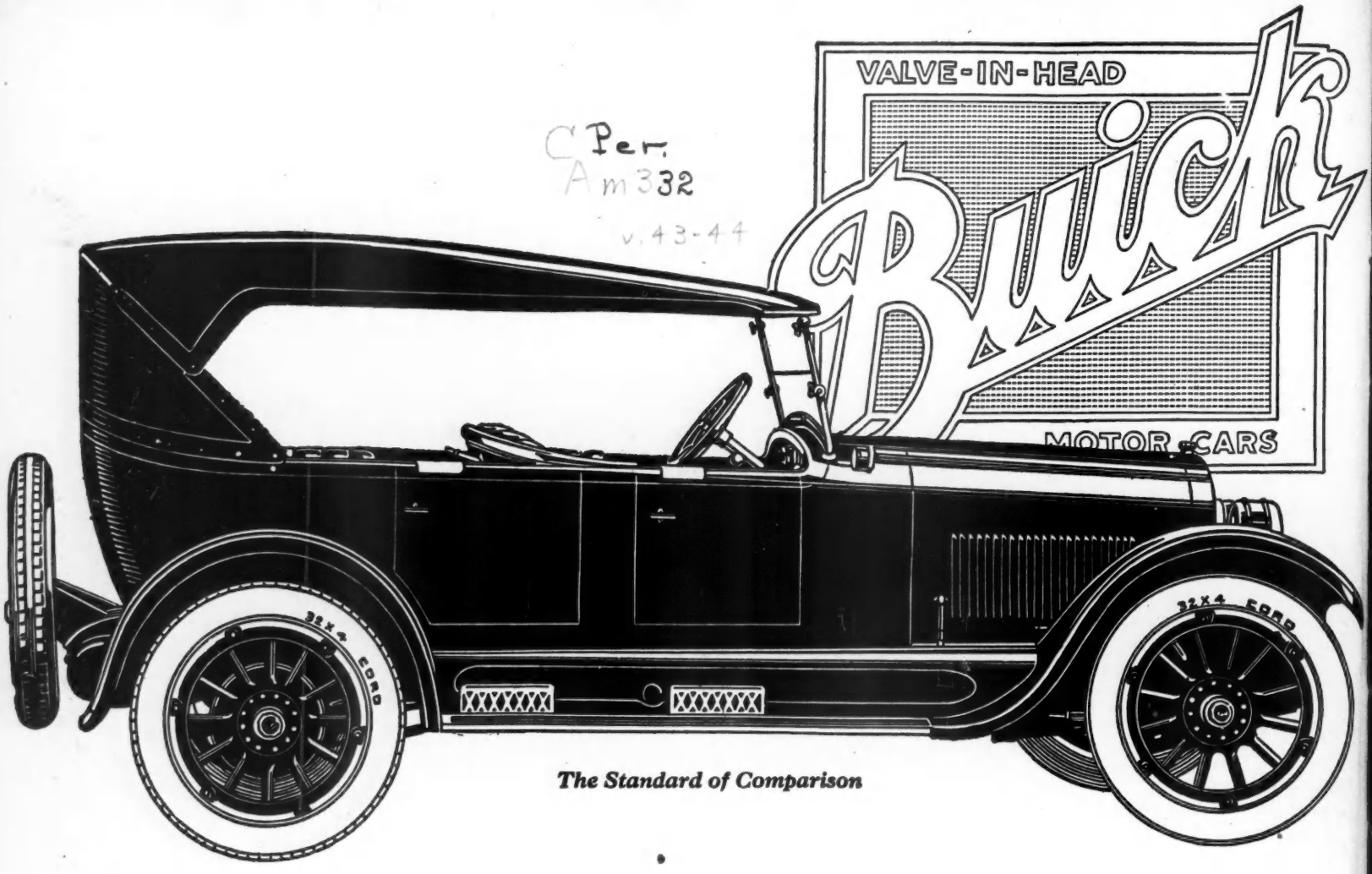


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HARRY W. WALKER, General Manager
SAMUEL ADAMS, Editor
C. I. LEWIS, Managing Editor
Associate Editors
PAUL C. STARK MARY LEE ADAMS
CHARLES A. GREEN
ADVERTISING REPRESENTATIVES
Western Manager
J. F. JENKINS,
53 West Jackson Blvd.,
Chicago, Ill.
J. C. BILLINGSLEA,
1119 Advertising Bldg.,
Chicago, Ill.
A. H. BILLINGSLEA
1 Madison Ave.,
New York City
Eastern Manager
ROGER FISON
15 Park Row
New York City
Pacific Coast Manager
W. A. SCOTT
606 Couch Building
Portland, Ore.

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# The Washington Navel Orange

## *By Carl S. Pomeroy*

THE Washington Navel is now the leading orange variety in this country. There are over one hundred thousand acres planted with it in California and a considerable acreage has been set out to it in Arizona. Bud wood of the variety has also been distributed from California to Australia, South Africa, Japan and other citrus growing regions where it is grown commercially. The rapid expansion of this industry has occurred largely within the last twenty-five years. Shipments of this fruit from California have gradually increased until they reached nearly 11,000,000 boxes or approximately 27,500 carloads for the 1920-1921 season with a value of about $27,000,000 f. o. b. cars, California.

This orange, like all the citrus varieties is propagated commercially entirely by budding. None of the established citrus varieties come true from seed so that the absence of seed in this variety does not make it necessary to propagate it in a different manner from others. The stock generally used in propagating the Washington Navel is the common sour orange. The seeds are planted in beds where they are grown for about a year. They are then transplanted to nursery rows discarding plants which are weak and otherwise undesirable. After growing for about a year in the nursery the seedlings are budded, usually in the spring and the resulting trees are allowed to grow one or two years in the nursery before being transplanted into orchard form. They are usually set from about 22x22 feet to 24x26 feet apart in the orchard making from 70 to 90 trees to the acre.

### Trees Bear Young

Productive trees sometimes set a few fruits when two years old. At four years of age they should pay operating expenses and when ten years old they should be averaging three to five packed boxes per tree if they have been given proper care continually. Higher yields than this are frequent and heavy producing trees sometimes bear 10 to 15 field boxes of about 42 pounds. Some of the earliest planted orchards are still producing good crops at 40 years of age.

In the Southwest the Washington Navel blooms in the early spring and the bulk of the crop is not mature till the following December and January. However in Arizona, the Coachella and Imperial Valleys and to a lesser degree in the San Joaquin and Sacramento valleys the fruit matures earlier on account of the warmer weather prevailing in those sections and it is marketed beginning in November and December. The fruits will remain in good condition on the trees for several months and their marketing season, except in the earliest ripening districts, usually extends into June.

Although the navel orange industry in Brazil is about one hundred years old but very few if any old trees of this variety are to be found there. It is a common orchard practice in that country to cut back the trees severally, usually to a point below their heads, when they are from twenty to twenty-five years old. This is done to renew their vigor and increase their production and some trees have been cut back in this way four times. In that section the trees are subject to a considerable number of diseases and insects but the gum disease and the sauva ant are the only really serious pests. In view of the fact that no real effort is made to combat the most of these troubles it is remarkable to note the relatively small amount of injury done to the trees or fruit by them.

### Insects and Diseases

In California, on the other hand, a number of insects and diseases which attack Navel orange trees are so serious that unless they are controlled the industry would be severely crippled within a very short time. The scale insects make it necessary to fumigate trees under large canvass covers every year or two at a cost of from 35c to 50c a tree. The Red Spider, Mealy Bug, Thrips, Aphis and other insects, together with Scaly Bark, Gummosis and other diseases make it necessary to wage a continual warfare in order to maintain the orchards in a healthy and profitable condition.

The origin of the Washington Navel as a bud sport is reflected in the frequent occurrence of a number of strains of the variety as bud sports in many established orchards, two or more of these strains often appearing on a single tree which has been grown from one bud. This tendency

(*Continued on page 14*)

Washington Navel Orange Orchards in Southern California in the Riverside District

# A Japanese Prince in Alabama

## By David Holt

MUSCLE SHOALS at the north end of Alabama and the Satsuma orange at the southern end of the state are the two present and prospective developments that are attracting greatest attention towards the commonwealth that stands first in the alphabetical roll of the states. Both are progressing, though still in a formative period of existence.

The citrus crop of 1922 in the two counties bordering the Gulf of Mexico, Mobile and Baldwin, will exceed 500 carloads and will have been sold and delivered before this article appears in print. The fruit, packed in half-strap boxes with a capacity of 25 quarts, held its own in price, package for package, with the whole boxes of California and Florida oranges on the market at the same time.

Planting of new orchards is only limited by the amount of desirable nursery stock available and the new orchards that will come into bearing in 1923 will bring about a volume of production creating a serious marketing problem which the larger growers are preparing to meet by consolidating their selling organizations and by systematic advertising to increase the consumers' demand for Satsuma oranges.

### The Satsuma Belt

The Alabama Satsuma belt is on the same parallel of latitude as northern Mexico and is therefore further south than the southern most extremity of California. Proximity to the Gulf of Mexico, the heating reservoir where originates the Gulf Stream, also has a modifying influence upon the climate, winter and summer.

Records of the United States weather bureau at Mobile show that for a period of 45 years the mean December temperature was 52°, F., the average warmest was 61°, the average coldest, 44°, the highest on record, 80° and the coldest on record, 14°, above zero. The average annual rainfall for the 45 years was 62 inches, well distributed throughout the year. There have been colder days during that period in the months of January and February, but the mean temperature for the two months is respectively 52° and 54°, F.

Yet, with all the mildness of the winter climate, only the hardy Japanese dwarf, Satsuma, on Citrus Trifoliata stock, reasonably can be depended upon, of all the citrus fruits, to withstand the occasional cold that reaches to the shores on the Gulf on the heels of a blizzard.

Citrus Trifoliata, hardiest of all the entire citrus family, has been known to withstand a low temperature of 2° F. above zero. At first the most extravagant claims were made for the Satsuma orange budded or grafted on this hardy stock. Experience has shown, however, that this fruit does not thrive in this section of the country at latitudes further north than the Orange Belt extending along the Gulf Coast for a depth not exceeding 50 miles from the sea.

### History of Development

In 1890 a Satsuma orchard planted in Baker county, Florida, attracted some notice and five years later one was planted in Jackson county, Mississippi, near Ocean Springs. Samuel White, of Boston, made a small planting in 1896 on the eastern shore of Mobile bay, and at about the same time an orchard was planted on the Legree place, in the southern part of Mobile county.

Progress during the thirteen years since the Satsuma industry began to assume commercial proportions in Mobile county is summarized by Dr. O. F. E. Winberg, president of the Gulf Coast Horticultural Society, and a recognized authority on citrus growing in Alabama.

"The industry has received its setbacks during these years but the setbacks have in the final analysis been for the greatest good. They eliminate undue enthusiasm for the industry not based upon actual facts; they eliminate the so-called boom, which has no sound value in itself. The industry as it now stands is based upon sound, conservative methods along scientific, practical lines, always bearing in mind the welfare of the industry and the growers interested. We hope never to see a boom again, but rather a steady conservative growth. Such development means the upbuilding of real communities of good people; it means prosperity and contentment.

### Much Accomplished

"What has the Satsuma grower accomplished during the years since the industry began to assume commercial proportions?

"Through the aid of the United States Department of Agriculture, the Alabama State Experiment Station and the State Board of Horticulture working through the Gulf Coast Horticultural Society, as a medium, many problems have been solved relating to the production of fruit. Through these efforts the growers have reached the point where they are intensely interested in quality production and we feel quite certain that through their organized efforts we shall reach the point where the gulf coast territory will produce the best quality of fruit not only in taste (which we now have in the fruit itself) but in appearance also, thus building up a reputation for our fruit and establishing its value upon its merits."

Satsuma orange trees sold by recognized nurserymen in Alabama can be relied upon. Through the efforts of the Gulf Coast Horticultural Society the legislature of Alabama has enacted needed legislation for the protection of the purchasers of nursery stock. The Satsuma bud wood must come from pedigreed stock. The State Board of Horticulture is given legal authority to demand that bud wood be only used from trees with satisfactory performance records.

### Keep Performance Records

Enforcement of this wise provision has removed one large element of risk from the path of the orchardist of the future. Many of the established Satsuma growers in Mobile county keep the performance record of each tree in their orchards, every one of which is tagged, numbered and recorded. The nurseryman makes his selection of bud wood only from the trees that prove to be the best performers, not only in point of quantity, but quality, color, shape and flavor of the fruit they bear. The selection is made in the presence of an authorized deputy of the State Board of Horticulture and the law is well enforced, having the approval of the nurserymen, who realize that they are protecting their own industry by affording this protection to the public.

The State Board of Horticulture, through its deputies, keeps close watch upon all citrus orchards in Alabama to detect the first appearance of transmissible tree or fruit diseases, and has authority to proceed with the eradication of such diseases in a practical and effective manner; even to the destruction by fire of infected trees, if this should prove to be necessary and the only safe way for the control of the contagion.

### The Marketing

Marketing of Mobile county Satsuma oranges is conducted largely through cooperative organizations which are controlled by the growers. A company of growers and produce dealers also has been formed at Mobile to buy Satsumas, kumquats and grape fruit and to pay cash for such, just as the fruit comes from the orchards.

Oldest of the cooperative organizations, The Gulf Coast Citrus Exchange, started in 1914 with five members. In 1915 the exchange sent its sales manager to the northern markets and he succeeded in interesting one large firm of Chicago dealers in the enterprise. Since then the Satsuma orange of the gulf coast has become a recognized fruit in the principal markets of the country and brings higher prices than any other citrus fruit sold in this country. Since 1917 the production in Mobile county has increased more than 4,000 per cent and yet the markets of the country only receive enough of the Satsumas to give the public an appetite for the fruit and to increase the demand for it throughout the United States.

The officers of the Gulf Coast Citrus Exchange are Dr. O. F. E. Winberg, president, W. H. Reynalds, vice president, Colin McDonald, secretary-treasurer, and a directing board composed of representatives of the various local organizations. It is operated solely by and for its members. With packing houses and equipment at numerous points, throughout the citrus territory, the exchange buys or manufactures for its members their fertilizers, shooks, crates, orange wrappers bearing the Exchange brands, makes up carload shipments and attends to the routing and selling of the fruit to the best possible advantage; keeping in constant touch by wire with the principal markets and studying the coincident movement of fruit from other sections. It is supported by a small percentage of the amount received from the sale of the product of the orchards and has but small overhead expense as there are no large salaries on its list. The profits, if any accrue, go to the reduction of charges or to the improvement of the physical property owned and controlled by the exchange. The whole plan was based on one successfully applied by the California Citrus Growers for the marketing of their products. Its strong points are economy, careful packing and shipping, maintaining the uniformity and integrity of the several brands, giving the public what it wants and watching for the best markets—in brief, good salesmanship.

### High Quality Fruit

Satsuma is the queen of the citrus family. The fruit is about the size of the Tangarine, but of much finer quality and texture. No other orange of the Mandarin type can compare with the Satsuma either in beauty or flavor. With a slight similarity in shape and general appearance the resemblance ends. The Satsuma stands alone.

The best Satsuma is a medium sized orange, slightly flattened at the stem and blossom ends, of rich golden color, with thin rind or skin, that peels easily with the fingers. In peeling it, no white fiber adheres to the pulp sections and it usually is seedless.

Like many of the trees of Oriental origin, the Satsuma appears dwarfed, seldom exceeding ten feet in height. The fruit is borne in clusters of great profusion and the fruit-laden orchard is indeed a thing of beauty. It well might be grown for ornament, even if it had no other value.

There does not seem to be any limit to the number of Satsuma oranges that one safely may eat. The juice has exactly the right combination of acidity and sweetness, it is profuse in quantity and delicious in taste. Invalids and small children seem to thrive upon it.

The shipping qualities of the Satsuma orange are good. Unlike many varieties of citrus fruits, full sugar content is developed early in the ripening stage. With the ripening process now highly developed at the best of the packing plants, the fruit may

(Continued on page 20)

Chickens and Satsuma Oranges, a Good Combination

Orchard Owned by Mayor R. V. Taylor of Mobile

# Methods of Fertilizing Orange Trees

## By Alvin Fox

THERE are three facts relative to the habits of growth of the orange tree, which have direct bearing on practical fertilizing. First the great longevity of the tree itself. This age and slow development means that any fertilizer applied to the tree, unless interfered with by other conditions, is subject not only to the action of the tree, but of the elements, and soil changes for a long time. Material not used by the tree during the first season, may become available the next, or possibly remain for years within reach, and eventually be used. The special significance of this, lies in the application of the phosphoric acid. The reverted acid is probably fully as valuable to the orange, as the soluble form, and doubtless in time becomes available and is used by the tree. This accounts for the common preference of growers for bone-meal and similar forms of phosphates.

The next important consideration in connection with the character of the tree or its habits of growth, concerns its root system. Different stocks, possess root systems quite different and therefore vary in their food requirements. The sour stock is much more deeply rooted than is either of the others. Nitrification is a comparatively shallow soil process. The shallow rooted stocks are therefore more likely to derive full benefit from the fertilizers whose nitrogen must undergo the nitrification process. On the other hand, sour stocks are most likely to utilize nitrates, which often penetrate the soil below the depth of shallow roots.

A third point worthy of consideration, is that the orange grower must fertilize for two distinct purposes, with quite unlike requirements. He must feed both tree and fruit. With bearing trees both these requirements must be supplied at the same time. With trees which should be in fruit, but are for some reason unproductive, intelligent fertilizing is the most efficient corrective. The most important practical deduction, is that the young grove, before it comes into bearing, needs treatment for trees alone and should be fertilized quite differently from the grove, possibly of the same age, which has not yet reached the fruiting stage.

### Forms to Apply

With all crops in which the special properties dependent on aroma and flavor control value, the form in which the plant food is supplied, is of great importance. This is particularly true of the orange, the appearance, quality and flavor of which so largely influence market returns. The health of the tree itself may be so affected by certain common forms of fertilizer.

The source of the phosphoric acid supply, seems to be immaterial so far as results are concerned. Cost of the actual plant food is the controlling factor. The less quickly available forms, bone-meal, soft phosphate and thomas slag may be used for permanent tree making materials. For regular feeding and quicker results acid phosphate should be the standby.

The best form of potash to supply the orange tree is sulphate of potash or sulphate of potash-magnesia. The former can be used where transportation enters largely into the cost of getting the potash to the grove and can be used on young trees to good advantage. The latter "commonly known as low grade sulphate or double manure salt" is considered the best form for fruiting trees on account of the magnesia which it contains, which is not found in the other forms of potash manure. A grove in Florida on which no other form of potash has been used for a period of twelve years, is noted for producing fruit of the finest flavor, beautiful color and good keeping qualities. Hardwood ashes can also be used to good advantage occasionally.

### Choose Nitrogen Carefully

In selecting the form of nitrogen the greatest precaution is needed. Stable manure should as a rule not be permitted near orange trees. Although even cow and sheep manure has been used in connection with a supplementary application of potash and phosphoric acid, there is danger of a rank growth, thick skinned fruit with excess of rag and inferior flavor, with even splitting and dropping, if stable manure is used alone. Still more to be guarded against is the "DIE-BACK" almost sure to follow the continued use of a fertilizer containing too much nitrogen. Other organic forms of nitrogen, such as cotton-seed meal, tankage and blood, possess much the same tendency as manure and should be used with great caution except on the soil noticeably deficient in organic matter, and preferably for tree growth, before the bearing period. Nitrate of soda is the ideal source of nitrogen. Sulphate of ammonia stands next. Between these two the cost of actual nitrogen at the time of purchase, may safely be the basis of selection. Mineral forms of nitrogen should be used to the rigid exclusion of organic forms, except under the restrictions mentioned.

This Satsuma Tree Bore 16 Bushels of Fruit in 1922. Ten Years Old.

### Secondary Effects of Fertilizers

Certain fertilizing materials, particularly kainit and nitrate of soda, possess well recognized insecticidal properties, probably of some direct value in the orange grove. The most important secondary effect of fertilizers is exerted on the water content of soils. To this the increased drought-resistant power of soil fertilized with certain mineral salts is due.

### Relations to Quality

The variations in quality of oranges are so great, and their value is so influenced thereby, that the recognized relations between fertilizer used and fruit produced are worthy of careful consideration. Phosphoric acid possesses slight specific influence, after the demands of normal development have been supplied. Organic forms of nitrogen are detrimental to general quality, result in coarse texture, thick rough skin, excess of rag and lack of good flavor. Nitrate of soda is sometimes claimed to increase the sourness of the fruit, but apparent cases may usually be traced to the comparative lack of potash, resulting in a disproportionate amount of nitrogen.

Of the three essentials, potash exerts by far the greatest influence on character of fruit. Thinner skin, large proportion of pulp and sweeter juice are the acknowledged effects of potash. So marked is this influence that the experienced grower in FLORIDA where the science and art of orange fertilizing is developed to the highest degree, will unhesitatingly pick out the fruit resulting from sufficient potash supply from that produced in the same grove with lack of this essential.

### Time and Method of Application

Fertilizer should be applied at least twice during the year. Bearing trees will do better with three or four applications. February-June-September and November are the proper months and intervals. The first may be called the bloom, the second the fruit and the last two the wood fertilizing. The former two applications should therefore be comparatively strong in nitrogen; the final fertilizing of the season should be particularly a potash application. The phosphoric acid may remain constant. Proportions and quantities will be separately considered. All applications should be apportioned to the individual trees. The party applying same should walk with the right hand to the tree, throwing the fertilizer toward the center in the same manner that seed is sown. This will allow sufficient fertilizer to drop at the edge of the trees for all necessary purposes and put the bulk in the center, where the mass of feeding roots are located. It should be either hoed or cultivated in.

A common tendency to apply very close to the trunk of the tree should be avoided, except during the first two or three years. The circle of application should be gradually widened till the tree is eventually compelled to seek its food through all the intervening space between the rows. There is no danger of fertilizer needed by the tree escaping its search. The larger the fertilized circle, the greater the area from which the tree will draw its supply of moisture and natural food.

### Proportions to Use

As has already been shown, the amount, character and proportions of fertilizer which should be given to growing trees and to bearing groves are materially different. Each must, therefore, be considered separately in this connection. Six years may be accepted as the age at which the average grove may be expected to come into profitable bearing. Sweet seedling trees may require four years longer for reaching this stage. Certain varieties, particularly the SATSUMA on TRIFOLIATA stock, are very early bearers, even producing fruit in the nursery row. The age limit, therefore, is only comparative and must be accepted with these modifications.

The ability of the tree to use fertilizer during the first season is comparatively slight. After the first year the basis of plant-food supply for the tree should be about the following amounts per year:

| | |
|---|---|
| "A" Light Soils | |
| Phosphoric Acid | .8 lbs. |
| Nitrogen | .4 lbs. |
| Potash | .6 lbs. |
| "B" Heavy Soils | |
| Phosphoric Acid | 0.6 lbs. |
| Nitrogen | 0.2 lbs. |
| Potash | 0.6 lbs. |

These proportions of actual plant food must necessarily be supplied to the grove by the application of mixed fertilizers, or of the different fertilizing chemicals required to furnish the quantities of the trees essentials mentioned. The properly mixed fertilizer containing these quantities of actual plant food would have about the percentage composition of Phosphoric Acid, 6 per cent; Nitrogen 4 per cent and Potash 6 per cent. One half of the nitrogen is to be omitted from the application to heavy soils.

The following materials may be advantageously applied for supplying the fertilizer requirements of 100 trees. Acid phosphate, 500 lbs., Nitrate of Soda, 175 lbs., Cotton-seed meal, 200 lbs., Sulphate of Potash, 125 lbs. On heavy soils the cotton-seed meal should be omitted, and the nitrate of soda be depended on as the entire source of nitrogen. Dissolved boneblack may be substituted for the acid phosphate, sulphate of ammonia for the nitrate of soda, and sulphate of potash or potash-magnesia for the muriate of potash, when convenience or economy makes these forms the preferable source of supply. The substitution of any of these materials should be made on the basis of their percentage composition, so that the quantity used shall contain the same quantity of actual plant food as called for in the above formula. As all fertilizer materials are sold on their analytical composition, the substitution is very simple. For instance: Suppose that sulphate of ammonia happens to be more economical or desirable, in some case, than the nitrate of soda mentioned, so that a substitution of the former for the latter is desired. The quantity of nitrate of soda called for is 175 lbs. This must not be replaced by an equal number of pounds of sulphate of ammonia, which is richer in nitrogen, but by the quantity of the latter necessary to give the same amount of nitrogen contained in the 175 lbs. of nitrate. The latter contains approximately 15 per cent of nitrogen, while the sulphate contains 20 per cent; 130 lbs. of the sulphate of ammonia, therefore, contains as much nitrogen as 175 lbs. of nitrate of soda, and is the proper quantity to be used in the substitution. With this principle in mind the grower may vary the ingredients of his fertilizer mixture at will, from the desirable materials at his command, and still not alter the supply of actual plant food made accessible to the tree.

### Quantity to Apply.

The quantities to be applied to the trees must necessarily depend on age, condition and also previous treatment of the soil. The first year 2 to 3 lbs. of the mixture recommended will meet the needs. One half of this quantity should be applied at the time of transplanting by putting it in the hole at least ten days before the time the tree is put out and thoroughly mixing it into the soil. The other half may be put on either in June or July. The annual application should be regularly increased as the tree grows. The rate of increase may be approximately one half each year, till the tree is from 4 to 6 years old, when it may be expected to be far enough advanced in crop producing to be placed in the list of bearing trees and be treated with the bearing tree fertilizer.

As a guide to the proper individual application to trees, the following may be accepted as good practice: 1st year, 3 lbs.; 2d, 4½ lbs.; 3rd, 6 lbs.; 4th, 9 lbs.; 5th, 12 lbs.; 6th, 15 lbs. The age at which the change from tree to fruit fertilizer may be made cannot be foretold. It varies greatly even with the same varieties. The Satsuma

(Continued on page 27)

# Mechanical Preparation of Oranges for Market

## By Rosalind Martin Brown

THE average person who eats oranges or grapefruit does not realize that the fruit has been through a thorough mechanical process of washing and drying before being marketed. Visitors to Florida find the packing house where the fruit is prepared for market by means of specially constructed machinery, of absorbing interest. Motion pictures of the process have been made, still there are many persons who have not seen the pictures nor enjoyed a trip to Florida nor California, where a similar process is used, and for them this illustrated description has been prepared.

### Harvesting the Crop

The fruit is cut from the tree so that the stem end remains sealed allowing none of its delicious juice to escape. It is then hauled in field boxes to the packing house by truck.

Here the fruit is emptied on an incline runway where it is picked up by an endless belt, starting its initial journey to the markets of the world. The belt is composed of wooden rollers about three inches in diameter, which cause each orange or grapefruit to go gently forward from roller to roller as the belt is kept in motion.

### Washing and Polishing

The fruit goes along on its way to be washed and plunges into a large water filled vat, four feet deep, fifteen feet long and four feet wide. As the fruit goes in at one end and floats on the water, the pressure of fruit from behind causes it to move forward and ascend another roller which is similar to the first, only between each roller is a series of stiff brushes which clean and brighten the fruit as it is moved along, then ascending the belt to be dried. This peculiar belting and other packing house machinery is made by the Skinner Machinery Company whose plant is located at Dunedin. It is the only plant of its kind east of the Mississippi River, having a few years ago bought the state rights of a similar concern located in Tampa, in addition to their large plant at Dunedin.

The Brogdex Applicator shown in the ground floor plan, while of comparatively recent origin, is in general use in Florida packing houses and is being introduced into the packing houses of California and Porto Rico. It is used in processing fruit for the purpose of improving the appearance and keeping qualities.

After being washed the fruit is dried in an enclosed, warm metal drying box. It is moved along on felt covered rollers which dry and polish the fruit. The fruit continues on and is next sorted, the culls being taken out and the fruit graded as to color—bright, golden or russet. Much care and skill is used. In order to insure fruit of highest market value all the packing houses controlled by the Florida Citrus Exchange, which handles forty per cent of the Florida citrus crop, are placarded in conspicuous places near the graders bearing this sentence. "Every Doubtful Orange is a Cull."

Usable culls are manufactured into fruit juices, soft drink flavors, jelly and marmalade. The peeling is preserved by being candied or crystallized.

### Sizing the Fruit

After being graded the fruit is sized, automatically by machinery. Wooden rollers work from above instead of beneath as in grading. The rollers are adjustable. They are usually set lower where the fruit comes on the sizer and higher farther down the line, so that smaller fruit drops down into the bins first, the larger having farther to travel. The sizer is level in the center slanting downward at a forty-five degree angle to one side. The fruit passes along until it reaches the roller adjusted to its particular size then tumbles down

Typical Florida Packing House. Note the Skylights

the inclined side of the sizer into bins beneath, the next size following and so on down the line.

As the fruit falls into bins, a packer is ready to wrap and pack it in boxes. As a packer fills a box she places thereon her card bearing a number or letter. A daily record of this is kept as the packers are paid so much per box. Grapefruit and oranges are not packed at the same time as the sizer has to be adjusted for each kind of fruit. Oranges are packed according to size in the following number to a box: 96, 126, 150, 184, 200, 216, 250, 288 and 324. Grapefruit are packed 28, 36, 54, 64, 80, and 96 to a box.

### Nailing the Package

As soon as a packer fills a box it is placed on an endless belt and carried to the nailer. The nailer takes out the packer's card and files it, then adjusts the top. Taking nails from an automatic nail feeding machine he then operates a pedal which causes two iron bars to descend clamping down on each end of the box. These bars hold the box firmly in position leaving the man's hands free, but they do more than this—they cause the top to bulge up in the center and give the "Bulge Pack," which prevents squeezing the fruit. The nailer drives in the nails, generally with one blow each, but the top is not yet secure, so with his gloved hand he quickly takes the projecting end of bail wire wound on a nearby reel, pulls the wire forward and secures it with a nail to the far side of the box, stretches it across the top and fastens it on the side nearest him and with one blow of his hatchet cuts off the wire, trips the pedal letting the clamping bars up and thereby releasing the box.

The stamper now stamps the box with the number of oranges to the pack, also the color, thus enabling the trade to ascertain these facts without opening the box. Fruit is ordered by number and color.

The boxes are moved by small hand trucks to the car. They are placed in the car on end, three hundred and sixty to a car, forming two layers. These layers are secured in place by bracing cross-wise the car with thin wooden strips to prevent jolting. This number of boxes does not completely fill a car as adequate air space is a necessary feature of successful transportation.

### Making the Boxes

An interesting thing about every packing house is its box making department. The material for the boxes is the product of crate mills which specialize in fruit boxes and shipping crates. There are about thirty-five in the state. The Exchange Supply Company, owned by members of the Florida Citrus Exchange, located at Plant City is the largest with the Cummer Lumber Company of Jacksonville and the McRainey & Bridges Plant at Apopka ranking next in importance. The box making is usually a separate department of the packing house business located upstairs or on an elevated platform for the purpose of securing a runway for finished boxes without crowding the floor space. The box making machine pictured is made by the Morgan Machine Company of Rochester, New York. It turns out fifteen hundred boxes a day easily, with a full capacity of two thousand when handled by a swift operator.

You can see that the work is mostly done by girls who after a few weeks become very emcient and expert. Their pay is good, seven cents a box for orange packing and four cents for grapefruit. An average packer will fill seventy boxes of oranges or one hundred boxes with grapefruit per day. In some packing houses the pay runs a cent higher per box but in that case a different system of packing is used. The lifting of boxes, box making and picking, or field work, is done by men and boys. Contrary to the fixed ideas of most Northern people, no colored help is necessary either in the packing house or for field work.

### A Big Investment

It is estimated that there are two hundred and fifty packing houses in the state which collectively represent an investment of about $6,250,000. A representative packing house such as the one pictured employs from twenty to fifty persons during the fruit packing season and a field force for picking and hauling of ten to fifteen. A weekly pay roll for such a packing house is estimated at from $500 to $1,000 throughout the six and a half months of the year when citrus fruit is being handled. An average capacity for such a plant is two to five carloads of fruit per day. A minimum estimate of two carloads per day for each of the two hundred and fifty packing houses in the state would amount to five hundred cars of fruit shipped daily during the busy season. Counting three hundred and sixty boxes to each car this would equal 180,000 boxes daily output from the state during the shipping season.

The total amount brought into the state during 1920-21 by the sale of citrus fruits is estimated at $39,450,000. The number of boxes sold during this period amounted to 13,600,000. This total value is a little below the average for the last five years.

The Florida citrus crop this year promises to be the greatest ever pro-

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Packed Boxes Descending on Roller Belting to Refrigerating Cars

Sizer and Bins and Packers on the Left, Nailing Machine on the Right

# Coining Money Out of Concords

## By N. L. Partridge

Michigan Agricultural College

THE successful commercial cultivation of the Concord grape involves several conditions which are all of great importance, so much so, that the failure to satisfy any one of these factors will cause certain loss instead of profit in the vineyard. These are naturally divided into two groups, the first relating to the location of the vineyard, and the second to the cultural practices followed in it.

In order to be a commercial success, the vineyard must be located where it will produce a crop most years. The grape is a plant that is very tender in the spring. The young shoots and even the swollen buds are very easily injured by freezes and frosts. The most important commercial grape growing sections are located where large bodies of water delay the opening of spring, so that frosts are less frequent after the vines commence growth. The small commercial center in the vicinity of Council Bluffs, Iowa, is an example of regions located away from the influence of the Great Lakes; but the vineyards there are planted on hills well above the late spring frosts. The necessity of locating a vineyard where the air-drainage is good increases as the site is more distant from large bodies of water.

### Best Grape Soils

Grape soils are varied in character. This fruit is grown successfully in Michigan on soils ranging from a very light sand to a moderately heavy loam. We find, however, that the soils where the vines grow well, are rather deep, porous, and without a hard-pan, so that the moisture of the soil is well-distributed and available for the plant even during periods of drought. It is very apparent, however, that the tonnage of the crop increases with the increased fertility found in the heavier soils; but the quality of the fruit produced on the lighter soils is very high.

The cultural practices that determine whether the vineyard will be profitable are: constant shallow cultivation during the growing season; the maintenance of the vigor of the vineyard by the use of fertilizers, natural or commercial; the application of proper sprays, well-timed and thorough, when needed; and the proper pruning of the vines.

### Shallow Cultivation Essential

The grape demands constant shallow cultivation during the growing season. This should be started after growth commences but before blooming time. The three-bottomed vineyard gang is used to plow the vineyard to a depth of about 2½ to 3 inches, the furrows being thrown away from the vines as the plow goes up and back once between each two rows. The ground around and between the vines is then hoed, first by the grape hoe and then finished up around the vines by hand. It is sometimes necessary to plow a single furrow around each row with the one-horse plow where the rows are far apart. Any suckers growing up around the trunk should be removed, unless it is thought desirable to grow a new trunk, in which case the strongest sucker is retained.

After plowing, the soil is kept stirred by harrowing. Where the soil is of uniform texture, a disc harrow may be used to advantage; but where spots of light and heavy soils alternate, discs will tend to run too deeply in some places, thus injuring the vines by cutting off the feeding roots, or too shallowly in others, when the soil is not properly cultivated. In such places the spring tooth harrow is used to advantage. The cultivation must be shallow, no matter what tool is used, or the vineyard will be permanently injured.

### Use Cover Crops

A cover crop should be seeded at the last cultivation, about the first to tenth of August, in Michigan, although many growers are satisfied to have a crop of weeds to turn under in the spring. We believe that it is essential to keep the vineyard well supplied with organic matter, and that this can be done best by growing a cover crop. The three-bottom vineyard gang plow will not cover a very rank growth, so it is necessary to plow a crop that survives the winter, like rye or vetch, very promptly in the spring, or it will make so much growth that the gang plow will not cover it. For this reason, many commercial growers will not grow a crop of this character, preferring to use one that will be killed during the winter, such as oats or millet.

Fertilizers are often valuable or even indispensible. Nitrogen is the element most frequently lacking in vineyard soils. However, the only way to find out what fertilizer should be used in a particular vineyard is to make a trial of the response given to the various elements in that vineyard or in others on similar soils.

### Pruning Very Important

The pruning of the grape is much more important to the vineyardist than the pruning of our fruit trees is to the orchardist, because if the pruning of the vineyard is neglected even for a single year, serious damage is done the vines. The pruning should be carried out in harmony with some definite training system. Many of the commercial grape regions follow training systems that are practiced more or less locally. The four-cane Kniffen system of training, illustrated in the cut, is generally practiced in Michigan, and is adapted to almost all conditions. It will give as good yields as any other system of training, which carries the same number of buds on fruiting wood, and is more economical than some because no summer tying is necessary. The trellis required is of two smooth wires 2½ and 4½ feet from the ground.

As in the orchard, the pruning of a vineyard should be the pruning of a series of individuals, instead of the application of a rule of thumb. Pruning of the grape involves the thinning of the fruit and a consequent reduction of the yield. So, if we prune our vines too severely, we are pruning off our profits. On the other hand, a grape vine needs to have some of its fruit buds removed, or the vine will over-bear and the fruit will fail to develop the highest quality. In addition to the effect of the pruning on the yield of the season, the crop carried by the vine will influence the kind of shoots produced by the vines, and these shoots are next year's fruiting canes. All commercial growers will agree that the most fruitful canes are neither the very thick, long-jointed ones produced by the over-pruned vine, nor the very delicate, slender shoots produced by the under-pruned vine. So the vines that are pruned in such a way that they will produce good fruiting canes each year will be the vines that produce good, consistent annual yields. All of our vineyard practices such as fertilizing, growth of green manures, and especially pruning, should be designed to produce this type of growth, and must be harmonized to secure the best results.

### Buds and Pruning

We do not believe that any vineyard will give maximum yields where the pruner cuts all the vines to a definite number of buds—no matter what number may be selected as the proper one. There is no charm in the number forty—or in any other number—as far as the grapevine is concerned. Where such a practice is followed, the weaker vines will become weaker and weaker from the underpruning and overbearing that follows and so less and less fruitful from year to year, and the stronger vines will become more and more rampant growers from the over-pruning and underbearing practiced with the production of more and more of the very coarse, long-jointed canes which we do not wish to save as our fruiting wood. We must graduate the amount of our pruning to suit the individual vine.

So far there has been very little experimental work done regarding the question as to the proper number of buds that should be left upon vines of different degrees of vigor. However, it is our opinion that a vine of moderate vigor, producing about 2 to 2½ pounds of new canes during a growing season, will carry forty buds, bring the crop to good maturity, and grow and mature its fruiting canes for next year. Vines less vigorous, producing about a pound of new canes during the growing season, will carry about thirty buds about as well as the more vigorous vines will carry forty. On the other hand, vines that will produce a greater weight of prunings will carry more than forty buds, as well as the weaker vines will carry the smaller number. It is not our belief that a pair of scales is a necessary tool for the pruner; but we do believe that each man handling the pruning shears should estimate what growth each vine makes, and give it the treatment that is indicated by that estimate. The results may not be perfect, but the vineyard will be much

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# Alfalfa in the Orchard

## By Harold R. Hitchings

ALFALFA has been a boon to the dairyman and to the general farmer as a money crop. It is now proving to be a real boon to the orchardist especially the grower of apples.

I have been closely connected in the management of an orchard which was planted in an alfalfa sod. This orchard contains six acres planted to Wealthy, Oldenburg, and Red Astrachan. Two-thirds of this field has a very light stand of alfalfa and the remainder has a very heavy stand. The alfalfa has been seeded about twenty-four years and the apple trees are now twenty years old. This alfalfa and all other grass and weed growth has been cut twice a year and no part of it has been hauled out of the orchard. While the trees were young, that is up to eight years of age, the hay was raked and placed around each tree but since the eighth year it has been allowed to remain where it fell.

This orchard has been an interesting experiment, for there are some trees which have no alfalfa surrounding them, some with a light stand, and some with a heavy stand. The soil is a medium gravelly loam. The trees have all made a fair growth but it is very easy to see the difference between the trees standing in the heavy growth of alfalfa and those standing in the lighter growth. The trees standing in the heavy growth of alfalfa started off stronger when they were planted and have been ahead all the way through. The trees came into bearing about the same time, but those in the heavy stand alfalfa are much larger, bear more apples and are more consistent heavy croppers than those in other parts of the field. The Wealthy and Oldenburg have always borne heavy crops but the Red Astrachan have been rather shy.

The nitrogen formed by the alfalfa plant and the humus formed by the large amount of material going back on the land give the tree sufficient stimulus to grow a strong thrifty tree and also enables the tree to bring forth more fruit than where there is no alfalfa or only a light stand. The alfalfa takes the place of cultivation or a nitrogenous fertilizer and allows one to bring up an orchard much cheaper than by other means.

One should have a natural alfalfa soil that would hold a seeding for twenty or twenty-five years for the largest amount of success. For the best practice there should be very little or no alfalfa under the branches of the trees after they commence to bear fruit. This is especially true of the earlier varieties which have a larger percentage of drops. The alfalfa stubble punctures the ripe apples which fall and renders them unfit for market. Usually the large amount of mulch placed around the trees while young will smother out much of the alfalfa under the branches. Another method is to seed between the rows if seeding has not been done leaving a strip along side of the row which can be seeded to June grass or other grasses.

The apples do not color so well where there is a heavy stand of alfalfa. This is a matter that will need study and experimentation to discover the proper relation between the alfalfa and other grasses to obtain the strongest growing tree without taking a loss on improper color. The size of the apples will be increased by the use of alfalfa as one would expect from a thriftier growing tree. In all ways the alfalfa seems to force the tree much the same as cultivation.

There is about 800 acres of orchard in my vicinity, about two-thirds of which is in alfalfa and the other one-third is planted partly on old pasture land where there are natural grasses, partly on timothy sod, partly June grass and some of which was planted on a cut-over woodlot. Therefore I have ample opportunity to observe the development of the trees growing on land seeded to various grasses in comparison to the alfalfa seeded orchards. The alfalfa shows much the best results to date.

Alfalfa seems to retard the ripening of fruit from five to ten days over June grass or natural grass. This is sometimes a distinct advantage, for by the use of different grasses the picking season may be lengthened. It also keeps the leaves greener and keeps the leaves on the tree longer, acting very similar to nitrate of soda. I have never tried a close experiment on the keeping qualities of fruit grown in alfalfa but I believe they would hold up about the same as apples grown in other kinds of sod. Where the stand of alfalfa is heavy and the land rich the tendency is to produce oversize green apples which would be poorer in keeping qualities. The quality of similarly matured apples from alfalfa sod and other sod seeems about the same.

## Our Citrus Industry

PERHAPS no development in our American horticulture has been as remarkable during the past three decades as that of our citrus industry. Thirty years ago a few million boxes were thought to be more than the country could consume. Today there are probably enough citrus trees planted to mean that the tonnage in the relatively near future will reach 100,000 cars annually. We can say without much danger of contradiction that it is the best organized fresh fruit industry in America today and it is better able to distribute and merchandise its fruit intelligently than any other fresh fruit agency. It is so organized that it can give a national distribution to avoid gluts and has steadily increased the per capita consumption of citrus fruits in this country as well as abroad. Through intelligent advertising they have converted the people from a holiday consuming public to one that is consuming oranges and other citrus fruits freely every day in the year. The American public has been educated to the food value of the citrus fruits, to their health giving qualities. The American housewife has been taught many attractive new ways in which to use the product.

How gratifying it is to realize that this marvelous development has been brought about through organization. The three biggest citrus shipping states in the Union are all thoroughly organized, the organized growers controlling more than half the tonnage and the pioneer work in organization, advertising and distribution has been borne by the organized growers.

Twenty years ago we were eating sour oranges and inferior varieties. Today we have a marvelously fine collection to choose from. In oranges in addition to the Navel, we have the fine summer orange or Valencia, the Indian River, Parson Brown, Pineapple, Temple and the Lue Gim Gong, and we must not forget the Satsuma and tangerine, and the fine varieties of grapefruit and lemons. The grapefruit, unknown thirty years ago, is finding its place on the table of nearly every family. Years ago our lemons were nearly all imported. Today 83% of the lemons consumed in this country are produced in America.

We are happy in this issue to be able to feature the citrus industry in a number of articles. We want to urge upon growers of deciduous fruits that our brothers engaged in the citrus industry point the way to a permanent success. The more the deciduous fruit growers will copy the practices and learn from the experiences of the citrus growers, the more prosperous the deciduous fruit growers will become.

## Sixty Millions Lost

SIXTY millions of dollars are estimated to be lost annually from spring frosts and freezes. A very large percentage of this loss could be easily averted. Southern California learned a number of years ago that it is never safe to depend upon the weather and that if oranges are to be saved, artificial means of heating must be provided. Each year a larger number of orchardists raising oranges in that section of the country are providing these means, but until all do so, the section will always be subject to some loss.

Florida has not had a disastrous freeze for many years but this may not mean, however, that a freeze is not going to come in the future. There are probably sections of the state that are subject to freezes occasionally and unless citrus crops in those sections are protected in some way there may come a day of reckoning.

The peach industry of this country is one of the finest examples of a crop which is quite often lost by a one night frost. Only this last season one of the large southern states lost their entire crop in one evening.

The early fruit districts of the country are always subject to damage as this is one of the characteristics which is associated with early fruit production. Pear growers in parts of the Pacific Coast demonstrated years ago that they could nicely save their crop by a little orchard heating. Other sections are seriously considering installing adequate equipment to meet any ordinary emergencies. There are one or two apple districts of the United States that have been losing so consistently the past few years that it is only a question of time before they will be forced out of the apple business unless, on the one hand, the weather changes radically, or, on the other hand, they protect themselves through artificial means.

Good, vigorous trees accompanied with good equipment and a little study of the question, will often mean the difference between profit and loss in our orcharding operations.

## American Pomological Society

THE American Pomological Society is the oldest society dealing with horticulture in America. It has done a great work. To it we owe much of the early work in the introduction and improvement of our best varieties of fruits. The Wilder medal has meant much to plant breeders and originators of new varieties. The Society has always conducted a program of education to the producer and to the consumer. We are indebted to it for a code of nomenclature which is sound.

Through the Society we have been able to clear up much of the confusion which formerly existed with reference to the many names given certain varieties.

The annual meetings of the Society have always been an inspiration and the reports have been well worth while in any library. In addition to these splendid reports, the Society sends out to every member numerous letters from time to time containing very valuable information.

The Society contemplates in the relatively near future entering a national program of work which is badly needed in this country and which no other organization seems fitted to handle. The Society now has some plans for improving our crop statistics which are sent broadcast over the country. It hopes to take up a program which will tend to nationalize our horticulture, to educate the consumer to the value of our fruits and to correlate our horticultural activities in this country. To do this work the Society needs members and money. It needs the support of progressive growers in every section of the United States. The $5.00 annual dues are a good investment. Send your contribution to Secretary Cruickshank of Columbus, Ohio, and help in the great work which the Society is performing.

## A Mild Winter

A NUMBER of years ago a florist started in business in a section where mild winters prevailed. He put in a rather makeshift piping system in his greenhouse, a system which was inadequate during cold spells. Of course, the inevitable cold spell came and practically froze him out of business. The expert florist or greenhouse specialist knows that he must protect himself against the coldest temperature which the weather bureau has on record and that only by so doing can he save his flowers and vegetables during the time of trial.

Our fruit industry in many sections, including, in some cases, whole states, is so unorganized from the marketing point of view that it can only prosper during years of light crops, when there are good financial conditions in the country, and when marketing conditions can be said to be normal or better. They are not prepared for the years when we have a big crop, for years when credits are somewhat restricted, because they lack a distribution and sales organization which is necessary to give them the proper merchandising, which must be maintained in years of heavy production. In other words, too large a percentage of our fruit growers are organized for a mild winter.

## Your Boy

LOVE of farm life on the part of a boy depends to no small degree on the attitude of the parents, and he will be largely drawn to the farm or repelled by this attitude. We do not necessarily mean that if a boy has a special trend for something other than the farm that he should be discouraged; but there are thousands of boys who leave the farm because of lack of proper encouragement. Make him a partner. Possibly you have a home orchard on the place and this might be turned over to him, thereby giving him a chance to develop his knowledge of growing and at the same time earn a little money on the side. Or in your commercial orchard you might set aside a small section of trees which he could know as "his orchard." You will arouse in him a great interest in trees and in orcharding. You will give him something to keep his mind busy. If possible, send him to your state college or university. In practically every state you will find good courses in horticulture. If you cannot do this, there are farmers' weeks and short courses, which would be very beneficial to him.

# Rambles of a Horticulturist

## By C. I. Lewis

COUNCIL BLUFFS, Iowa, was the Mecca of horticulturists November 15th to 17th, where they gathered from ocean to ocean to view the magnificent exhibit put up by the Mid-West Horticultural Exposition, and also to attend the very attractive meeting of the American Pomological Society. President L. H. Bailey gave a paper containing the usual stimulus that his papers always contain, followed by an instructive address by the Vice-President, Paul C. Stark.

The first day was devoted to the fruit industry. H. P. Gould of the Department of Agriculture discussed the geography of apple growing in America; Laurenz Greene gave the development of fruit culture in the Middle West, especially in Illinois and Indiana; the sour cherry industry of Sturgeon Bay was well handled by M. B. Goff. That district is now shipping out 800 cars of sour cherries. The sour cherry industry of Michigan with its problems and its development was well handled by Roy Marshall of the Michigan Agricultural College. Four papers were devoted to plums. These dealt almost primarily with varieties of plums. The east was handled by Dr. U. P. Hedrick of New York, the Middle West by Benjamin W. Douglass of Indiana, the Great Plains by Dr. N. E. Hansen of South Dakota and the Pacific Coast by A. H. Hendrickson of California. Nova Scotia came in for its share of publicity, W. S. Blair and his brother J. C. Blair, giving two addresses, one dealing with the commercial aspects of the industry. He showed that Nova Scotia exports annually about two million barrels of apples. The illustrated lecture showed that Nova Scotia was a delightfully beautiful place to visit in the summertime.

The second day opened with plant breeding. H. L. Lantz of Ames described in detail how the Iowa Experiment Station had crossed varieties of vigor and hardiness with varieties of quality and had produced some six varieties of great promise. These are so promising that they were awarded a silver Wilder medal. Prof. C. S. Crandall of Illinois went into details concerning the very thorough plant breeding work which is being conducted at that university. Breeding for resistance to pear blight brought out a great deal of discussion. This paper was handled by H. P. Stuckey of Georgia. Discussion arose over the value of the Pineapple pear. The difference in opinion seemed to be due largely, however, to the fact that several pears had probably been sent out under the name of pineapple and some of these are decidedly inferior. Fruit stock investigations by L. B. Scott of the United States Department of Agriculture was an interesting paper showing what the government investigators are doing in trying to propagate fruit stocks for American nurserymen. Experiments are being conducted with hard wood cuttings. Spraying came in for its full share of attention. Leroy Childs of Oregon gave an address which held the attention of the large audience. He gave the history and development of spraying, bringing it up to our modern practices, discussing the merits of dusting, spraying by guns versus nozzles, of low power versus high power, and gave some very interesting data concerning the amount of spray necessary for trees at different stages. He was followed by W. S. Brock of Illinois on spraying and dusting as a complementary practice. Dr. W. A. Ruth of Illinois gave a very instructive illustrated address on the use of spreaders, showing that spreaders do what they are advertised to do, causing a breakup and spread of the drops of spray. Prof. R. H. Roberts of Wisconsin gave one of his characteristic addresses on the correlation of orchard practices with growth and production. He showed clearly that the orchard practice perhaps at times received too much study and the tree too little, that whatever orchard practice would give sufficient growth to produce fruit, wood and buds at the same time will prove to produce the desired results. Prof. T. J. Maney of Ames discussed the effect of certain cultural practices on the production of apples. It was a report of the very interesting investigations which are being conducted at Council Bluffs, in an orchard which the college has controlled now for a number of years. Space will not allow us to go into details concerning this very fine report but it will appear in full in the Annual Proceedings of the American Pomological Society, which any member can secure by sending $5.00 to Mr. R. B. Cruickshank at Columbus, Ohio, who is Secretary of the Society. In addition to the report, growers will receive numerous letters. It is hoped that a large number of growers will avail themselves of this unusual opportunity. In brief Mr. Maney showed that the clover sod mulch plots are superior to the clean tillage and cover crops or blue grass plots in, yield, vigor of trees, general results secured, etc. J. R. Magness of the United States Department of Agriculture gave a very instructive address on cold storage. He showed that apples might possibly stay on the trees at a temperature of 26 degrees for twenty-four hours before serious damage would take place, that apples will deteriorate more in two weeks after harvesting at a temperature of 60 and 70 degrees than they will deteriorate in months in cold storage at a temperature of 30 to 32 degrees and only about 25% of the apples can be cold stored at the present time and more storage is needed. He gave some very instructive advice as to the handling of cold storage and common storage plants, how to handle the air to have sufficiently large intakes, etc., and many other points too numerous to mention at this time. The conference closed on marketing, James Nichol of Michigan discussing the Federated Fruit Growers and C. I. Lewis showing the benefits of advertising in the marketing of our deciduous fruits.

The beauty of the exhibit was beyond description. Drooping from the balcony and the stage were long attractive festoons of southern smilax. On the large tables which were well filled with beautiful shiny red and yellow apples, were huge bowls and jardinieres of immense chrysanthemums and the finest hot house roses. The exhibit was so large that additions had to be built on the outside of the hall to accommodate the attractive educational exhibit put in by the Iowa Experiment Station, the New Hampshire Horticultural Society, the Massachusetts Agricultural College, the American Pomological Society and the North Carolina State Board of Agriculture. Also, 126 varieties of apples were sent from Nova Scotia, some of these being of English origin. We regret that space will not allow us to go into details describing these very attractive exhibits.

Apple Exhibit at the Michigan Apple and Potato Show

### Northern Illinois Society

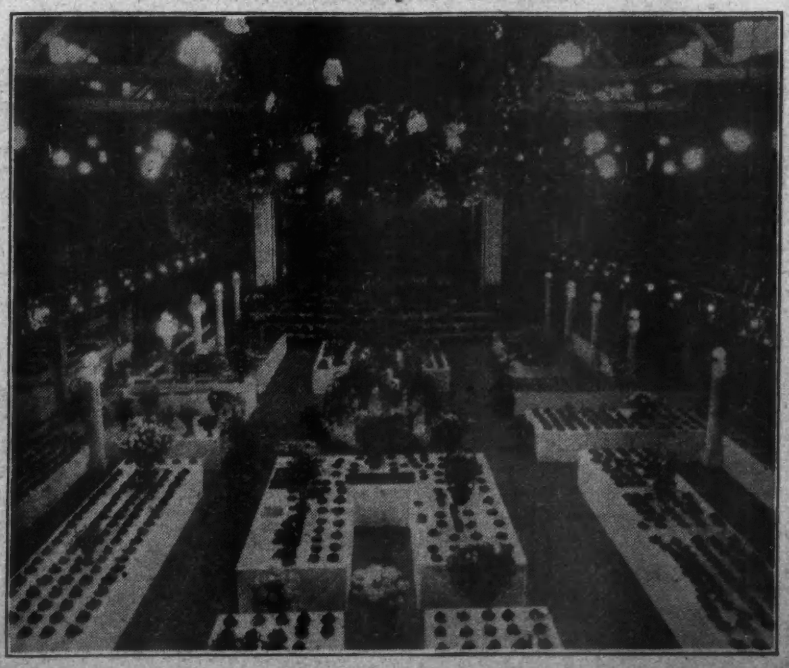
The Horticultural Society of Northern Illinois held its annual meeting at Sterling, November 21st and 22nd. There was an unusually fine exhibit held in the basement of the building. This exhibit showed that Northern Illinois can produce such varieties as Winter Banana, Grimes and Delicious unusually well. A very good attendance came from all over central and northern Illinois. Orcharding in this district consists largely of farm orchards but there is much interest and indications that orcharding will increase in years to come. Much interest was shown in small fruits, as handled by Dr. Colby of the University of Illinois and the use of fertilizers, as discussed by G. L. Smith, showing that nitrogenous fertilizers are necessary to get the best results in the orchard. C. I. Lewis gave a talk on the development and trend in American horticulture, showing what developments have taken place in the last two centuries, what practices were considered now as established and what the tendencies were indicating the practices during the next few years. Paul Stark gave a very entertaining address on the 7,000 mile trip which he made through orchards this summer. Dr. Roberts gave a talk on the correlation of orchard practices. Beautifying the farm home by Mrs. O. M. McElvain and insect and disease resistance of fruit trees by Fred E. Garver were well received.

### Michigan Horticultural Society

The annual meeting of the Michigan Horticultural Society was held at Grand Rapids, December 5th to 7th. In addition to the meeting, the annual potato and apple exhibit was also held at the same time. The exhibit was an unusually attractive, commercial exhibit. The fruit shown on the whole was of high quality, firm, generally suitable for storage, of high color, of good keeping quality, and remarkably free from serious blemishes. Very little scale was found on any of the fruit and neither judge found a single wormy apple in the two days of judging. This is very commendable. It shows that Michigan is certainly doing some fine spraying, as well as other orchard practices.

More than 600 growers met to enjoy the attractive program. Dr. G. H. Coons gave a very interesting life history of apple scab. W. S. Brock of Illinois discussed spraying versus dusting, while W. C. Dutton of the Agricultural College showed that cherry leaf spot can be controlled by summer spraying with either lime sulphur or Bordeaux mixture. Prof. V. R. Gardner gave an instructive talk on pruning, which was well received, and H. A. Cardinell of Missouri showed that control of insects and diseases has varied tremendously in different parts of the tree, owing to poor spraying which is too often given the top of the tree. Michigan is rapidly becoming a great grape state and much interest was shown in the discussion of the grape berry moth by R. H. Pettit of the College and G. A. Runner of the United States Department of Agriculture. Cover crops by Laurenz Greene was a very interesting subject as all Michigan soil practically needs a supply of organic matter annually to keep up the supply of humus. Marketing came in for its share on the program, N. R. Peet of Rochester, N. Y., discussing co-operative marketing of perishables and C. I. Lewis discussing advertising as a factor in the merchandising of our fruits. The wonderful development of Michigan horticulture was given by Hon. Jason Woodman, member of the State Board of Agriculture. W. G. McCool, who has charge of the Grand Traverse Packing Co., discussed the cherry industry and some of its problems, while precooling was handled by Henry Weltmann of Stevensville, Mich. Great interest was shown in the talk given by R. B. Wilcox of the United States Department of Agriculture on raspberry disease control. He divided the raspberry diseases into their natural classes, showed how important it was to select disease-free plants to begin with, to keep the soil amply supplied with fertilizer and nitrogenous material, to practice good cultivation, to eradicate plants which have certain

(Continued on page 26)



The Beautiful Mid-West Horticultural Exhibit at Council Bluffs

# The King of Kings

## By C. I. Lewis

Harlow Rockhill, the Originator

RECENTLY the press of the United States had a great headline entitled "$50,000 for a Strawberry Plant," and the whole horticultural world was set agog by this news. The facts in the case are that F. E. Beatty, President of the R. M. Kellogg Co., Three Rivers, Mich., has purchased for the sum of $50,000 the propagating rights of the Rockhill Everbearer, a strawberry originated by Harlow Rockhill of Conrad, Iowa. In addition to buying the propagating rights, Mr. Beatty also purchased a large stock of plants which Mr. Rockhill had on hand and steps have been taken to reproduce this variety rapidly so that the entire nation may share in the enjoyment of this remarkable strawberry.

The characteristics of this berry with regards to yield, size, quality and its long season of productiveness are such as to make it a berry which would be worth a million dollars annually to our strawberry culture.

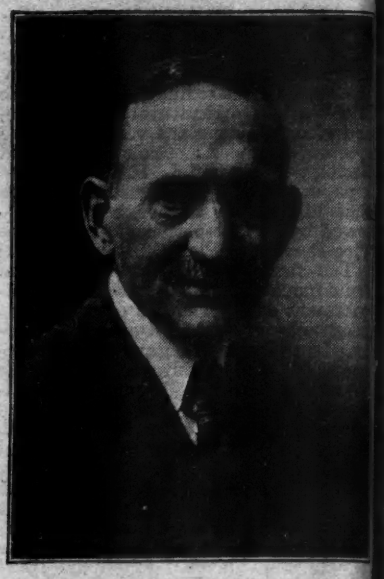
It is indeed refreshing to learn of the purchase of this strawberry and it will serve as an encouragement to plant breeders all over the United States, for plant breeders as a class have not been fully appreciated and have never been paid in accordance with what they have really contributed. Years ago the horticultural world was startled when it heard that the Thomas Lawson carnation had brought the originator $30,000. It is well known that the royalities from the Fay currant brought a fortune. Years ago the Oregon Nursery Co. took off the hands for the Oregon Horticultural Society the now famous Lambert cherry and propagated it so that cherry growers all over the world could enjoy this remarkable black cherry. Stark Bros. Nurseries have been famous for the work they have done in introducing new varieties, such as the Delicious, and similar varieties, which they have purchased from plant breeders.

It is interesting to note that Iowa is the home of some of our greatest fruits and of some of the greatest men in the horticultural field, men like Charles Patten, who did so much to breed up Iowa plants; and to think that Iowa is not only the home of the Delicious but is also the home of this remarkable new strawberry.

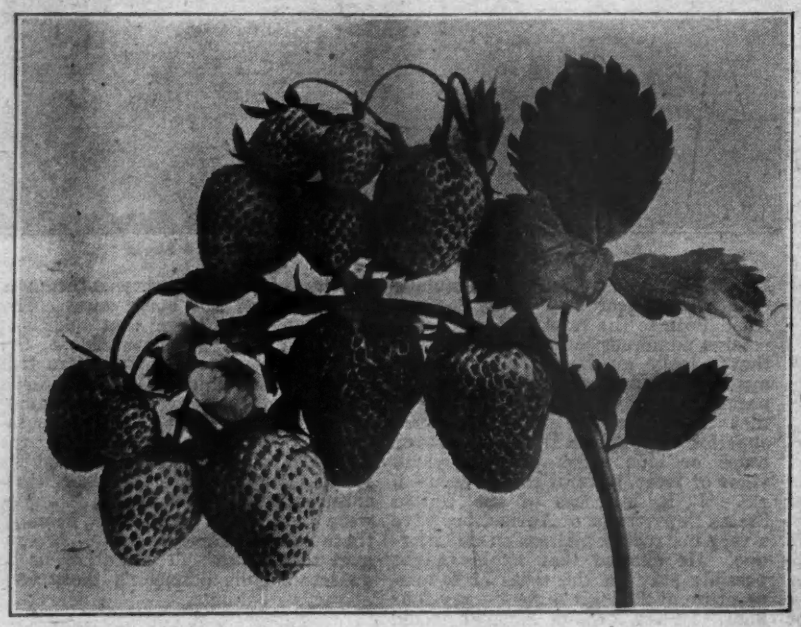
### The Originator

Harlow Rockhill of Conrad, Iowa, is the originator of this new berry. Rockhill has been a plant breeder for years. He has worked patiently and persistently and has accomplished a great deal. His modesty, however, has tended to keep him in the background. Not only is he a recognized breeder of strawberries but he is doing constructive work in the breeding of hardy hybrid plums, apricots and similar fruits.

Years ago Rockhill brought out the first everbearing strawberry. These had the one characteristic of being everbearing in type. They were often over-productive, frequently small in size and at times the quality was not up to some of the standard spring varieties. But Rockhill did not get discouraged. First, he worked to get everbearing character; second, he worked to get yield with this character; then, he incorporated in this vigor, giving the plants plenty of foliage, as well as a fruit bearing character, and finally with these he has connected quality.



Frank E. Beatty, the purchaser



Stalk Showing Mature Berries, Half Grown Berries, Green Berries and Blossoms, on Single Stalk

This has been a marvelous achievement. It was a big step forward from the early everbearing to the progressive and the other everbearings which have followed. The everbearings generally have not had the characteristic of producing well in the spring. They would bear a relatively light spring crop and scatter along through the summer, with a fair crop in the fall. This characteristic, it is reported, has been entirely overcome in the new berry.

### The Plant

The pedigree of this famous strawberry is as follows: Rockhill is a direct cross of Progressive everbearer and Early Jersey Giant. Progressive came

(Continued on page 19)

# Independence on Seven Acres

## By H. Glynn-Ward

IN the heart of the small-fruit country of British Columbia, which is situated along the north bank of the Fraser River as it nears the coast, is one particular holding of seven acres, every square yard of which is so scientifically cultivated and practically used, that the owner nets a comfortable income out of it, over and above expenses and a living for himself and his family.

The soil is naturally rich and particularly well adapted for small fruits, but the owner believes in ploughing in clover whenever possible as a basis, and also in the law of cultivating a small patch carefully and thoroughly rather than a big patch carelessly.

### Fertilizers Pay

Barnyard manure is too scarce to use universally, so he is obliged to revert to chemical fertilizers as far as finance will permit. He uses 600-800 lbs. to the acre of tankage, fish-meal or blood-meal when ploughing; and for strawberries when growth is just starting, about 200 lbs. to the acre of nitrate of soda, which makes all the difference to the crop, though this if put on later, is liable to make the berries soft.

He grows the Magoon strawberry, in the hill system, not believing in the matted row system except for jam. In a good year, his acre of straws realize $1,200 gross, of which about half may be allowed for expense of picking, packing, crating, etc. But these are the most uncertain of all fruits, for he says that in all his experience he has never known good crops in two successive years.

He has over an acre of gooseberries, mostly grown from cuttings; "Pearl," which are the earliest, "Orange Champion" for the main crop, and "Jocelyn" for the late market: 1100 bushes in full bearing which average a gross return of $1.00 per bush, half of which is clear profit. Believing prevention to be better than cure, he regularly sprays his fruit, and so has never seen a sign of mildew.

A Typical Strawberry Field in British Columbia

His acre of loganberries brings him in about $1200 gross, half of which is expenses. Though they do not fetch such good prices as raspberries, pickers can pick double the amount in a day and the crop lasts longer.

This grower disagrees with the method supported by some of planting logan tips vertically in the ground to a depth of six inches for he says that only in certain seasons can this succeed. As the tip does not start making root until all stem-growth has stopped, the risk of rotting if planted too deep in the soil is great. He plants his logans 8x6 feet apart, and cuts the branches back about one third and finds he gets larger fruit by this method.

### Raspberries Sure Crop

Another acre, rather more perhaps, is devoted to 'Cuthbert" raspberries, and another variety un-named but largely grown in this district, that even surpasses the "Cuthbert" for earliness and heavy yields. Three tons to the acre is the average crop—or 300 crates—for which the lowest price is $4.00 per crate, so it will be seen that the profit is the same per acre as for a good strawberry crop, and rasps are far more certain.

His canes are planted 7x8 feet apart

(Continued on page 21)

# 5,285 INSPECTIONS PER CAR

The faithfulness of performance so universally remarked in Dodge Brothers Motor Cars, is due, in no small part, to the thoroughness with which each unit is inspected during the process of manufacture and assembly.

A trained staff of 1100 experts is employed in this work alone, and approximately 5,285 inspections are made on each car.

So exacting and rigid are the standards applied to these inspections that the slightest variation, either in workmanship or material, is sufficient cause for immediate rejection.

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## DODGE BROTHERS

*The price of the Business Sedan is $1195 f. o. b. Detroit*

*Patents Pending*

Bradshaw plums unfertilized.

# Will Nitrogen Pay on Plums?

By Gail T. Abbott

THE problems of the fruit grower are numerous and puzzling. Those dealing with the growth of the tree and its fruitfullness are particularly so because the effect produced by a certain treatment often cannot be seen till years later.

It appears to be essential that we know the relation which exists between the supply of plant food in the form of the different fertilizer elements, and fruit production.

Not enough experiments have been made with some fruits to justify drawing very definite conclusions. In the case of apples it has been pretty definitely settled that on the poorer soils, particularly if in sod the lack of quickly available nitrogen early in the season is very frequently the cause of low fruit production and the sod orchard even when located on good soil very often responds to an application of nitrogen if made early in the season before the nitrogen in the soil becomes available.

The man who produces plums is not as fortunate as the apple grower because comparatively few fertilizer experiments have been made to learn whether plums are similar to apples or require some different combination of fertilizer elements to produce a heavy yield of fruit.

Some results in a plum orchard managed by D. R. McConnell in Mahoning County, Ohio are of interest in this connection. There are four varieties in the orchard, Bradshaw, Archduke, Lombard and German Prunes. The soil is classed as Volusia Silt Loam, similar to much of that in northwestern Pennsylvania and New York and the land slopes gently to the southeast. The orchard was cultivated till 1919 when it was seeded down and has been in sod since. The trees are set 20x20 feet or 108 trees per acre. No fertilizer was used in the orchard till 1920 when part of the trees of each variety were given one pound each of Sulphate of Ammonia and part were left unfertilized. The yield of fruit from both fertilized and unfertilized blocks of trees was about the same.

The following year or 1921 none of the trees were given any fertilizer. The unfertilized trees again yielded about as well as those which had been fertilized the previous year.

In the spring of 1922 all the trees in the orchard were given two pounds each of Sulphate of Ammonia. As the season advanced a very decided difference between the trees which had been fertilized two years before and those which had not was noticed. Remember that the treatment in 1921 and 1922 had been the same for all the trees.

Each block of trees was picked and the fruit measured separately with the following results as shown in table.

At the time when the fertilizer was applied, 1920, the cost was about 5 cents per tree or $5.40 per acre. It required but a small increase in the yield of fruit to pay for the fertilizer. After paying for this there was a handsome net profit left.

| Variety | Fertilized | | Unfertilized | | Gain per Acre |
|---|---|---|---|---|---|
| | No. trees | Bus. per acre | No. trees | Bus. per acre | |
| Bradshaw | 14 | 270 | 10 | 81 | 189 |
| Archduke | 34 | 256.5 | 20 | 27 | 229.5 |
| Lombard | 10 | 297 | 11 | 108 | 189 |
| German Prune | 9 | 243 | 6 | 189 | 54 |
| TOTAL | 67 | 261.9 | 47 | 75.6 | |

# Fertilizing the Sod Orchard

By W. H. Darrow

A. E. JOHNSON of Bethlehem, Conn., has been getting some very satisfactory results out of his sod orchard on his farm. This orchard consisted of 4 or 5 hundred trees, twenty-three years old, which were growing in sod near the house. The trees were planted 30 feet apart and covered practically an acre of land. Mr. Johnson began by giving the trees good care in regard to spraying and pruning, cutting off the dead wood and thinning out the branches where they were too thick. He was careful to spread his pruning throughout the tree rather than to localize it in three or four big cuts.

In the spring of 1921, just before the blossoming period, he applied eight pounds of nitrate of soda per tree, to 48 trees, spreading it broadcast in a circle under the branches. During that season the grass was mowed twice, once in June and again in September, and the hay was allowed to remain to form a mulch.

The trees were poorly budded in 1921 and in addition were caught in a very heavy frost, which cleaned off nearly all the crop and only 60 bushels of apples were harvested. These sold for about $50.00 and the cost for producing them was only $36.00, leaving a net profit of $10.00 an acre for an off year.

It was noted, however, that the trees in the fertilized block made more than twice as much growth as the trees which were left unfertilized and that the foliage was much heavier, of a darker green color, and that the buds which formed seemed stronger.

During 1922 Mr. Johnson followed much the same methods as he had in 1921. A part of the orchard, or 24 trees, was kept as check rows, receiving no fertilizer. On the fertilized trees about five pounds of nitrate of soda were used instead of eight pounds as in the previous year. The trees blossomed very well in May, were given five sprays during the season and 568 bushels of apples were harvested from 48 trees. These produced 452 bushels of No. 1's, 67 bushels of No. 2's and 49 bushels of culls, and this fruit sold at the farm for $384.31. The total expense for pruning, fertilizing, spraying, mowing and harvesting amounted to $94.64, leaving a net income of $289.67 from one acre of orchard.

The check plot of 24 trees, amounting to about one-half an acre, which received no fertilizer and for which the grass was removed as hay, produced only 72 bushels of apples in the fall of 1922, 36 of these being sold as No. 1's and 36 bushels being sold as culls. These 72 bushels of apples brought $37.80. Figured on an acreage basis, the check plot produced $75.60 as compared with $384.31 from the treated plot. In other words, on the basis of equal acreage, five times as much money was received from the fertilized plot as from the check plot. The fertilizer and mulch increased the returns over 400%.

Mr. Johnson needed only one demonstration like this to convince him that his method of mulching and fertilizing was the correct one and that it pays to buy fertilizer for such orchards. With the exception of the check trees, all trees by September showed a healthy green color which is characteristic of well fertilized trees. One must also conclude that the orchard makes a much better appearance and would prove a more attractive investment to a purchaser than would be true of an orchard in the condition of the check plot. Mr. Johnson was greatly assisted by the Extension Service of the Connecticut Agricultural College.

This orchard experiment is interesting to show what can be done with many of the farm orchards if proper practices are followed.

Bradshaw plums fertilized.

These illustrations are made from actual photographs. The peach on the left sprayed with Lead Arsenate—on the right with Sulfur Paste—both without KAYSO. The center peach shows the perfect spray distribution when KAYSO is used. Below are photographs of peach branches sprayed with Lime-Sulfur, with and without KAYSO.

# KAYSO---*the Casein Spreader*

## Spreads the Spray and Makes It Stay

KAYSO gives complete coverage of spray on fruit, leaves and bark—this means an unbroken, protecting film of insecticide or fungicide.

Kayso keeps spray from washing off. Rains wash off and destroy the efficiency of your spray materials. Kayso will hold the insecticide or fungicide on your trees long after ordinary spray washes off.

Kayso prevents chemical decomposition in combined sprays—thereby preserving the full toxic value of each spray material.

Kayso makes spraying more economical—spray covers more trees—less run-off—easier to apply.

Kayso raises the market value of fruit—allows the fruit to color fully and reduces arsenical burns.

For dormant spray applications—Kayso makes the drops of spray run together, spreads the spray material into the small crevices where the pests seek protection in winter.

### *The Value of Spreader*

Successful control of insects and fungous diseases depends chiefly upon the toxicity or killing efficiency of spray poisons, upon the thoroughness that fruit, leaves or bark are covered with spray, and upon the application of sprays at the correct time. Most authorities agree that failure to satisfactorily control orchard pests cannot be blamed to any great extent upon the toxicity of spray poisons. If the killing efficiency of a given insecticide or fungicide is low, the remedy is simple—merely use a larger quantity of the poison. It is obvious, therefore, that most of the preventable losses from insects and diseases are caused by improper spraying and by spraying at the wrong time.

### *Complete Coverage*

Proper spraying requires that the fruit, leaf or bark which is infected, or is liable to become infected, be completely covered by an unbroken film of insecticide or fungicide throughout the period that infection may take place. The correct time to spray is at the weakest stage in the development of the pest—for Apple Scab, just as the infection spores are thrown off; for Codling Moth, just as the eggs begin to hatch; for Psylla, just before the overwintering insects begin to reproduce; for Aphis, just after the winter eggs have hatched.

### *Infection Period*

The orchardist has faced a three-fold difficulty in the attempt to protect his crops against worms and diseases. In spite of all the care exercised in spraying, he succeeds in getting the fruit covered merely by spots of poison. Obviously such fruit, at the very best, is only partially protected by spray. Then it commonly happens that the spray is applied a week or ten days too early, with the result that the poison is almost entirely washed off before the infection period comes on. Consequently, the fruit is almost as susceptible to infection as if it had never been sprayed.

### *Weather Conditions*

Finally, a third important reason for heavy losses, over which the orchardist heretofore has had no control, is that the insecticide or fungicide is removed from the surface of the fruit, leaves or bark, by the action of rain and wind, before the period of infection has passed. In case of Codling Moth or Brown Rot, for example, the spray may be applied just as the Moth eggs begin to hatch, or as the Rot spores commence to disseminate, but a day or two of rainy weather, immediately following the application of spray, may leave the fruit practically unprotected for the remainder of the infection period.

### *Kayso Solves the Problem*

KAYSO is primarily a spreader and adhesive, though it possesses many other important qualities. It is indispensable for the most effective control of orchard pests. By using KAYSO in all spray applications the orchardist is able to get the fruit, leaves or bark of his trees completely covered by an unbroken film of insecticide or fungicide. Not even a microscopic spore of Scab, Brown Rot or any other fungous disease will germinate without encountering the deposit of spray. KAYSO is unquestionably of immense value in keeping spray from being removed by rains and wind. KAYSO adhesiveness overcomes, to a large extent, the losses that commonly result from spraying too soon, or from having the poison materials washed off by rains during the period of infection.

*Send Today for New Illustrated KAYSO Circular---Free*

# California Central Creameries, Inc.

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DEALERS who have not already stocked Kayso, should take notice that Kayso is used throughout the United States. Be ready to supply your trade. Correspondence invited.

Ask your dealer, or send coupon to New York Office

Enclosed please find 40 cents. Mail me sample package KAYSO, sufficient for 200 gallons of spray.

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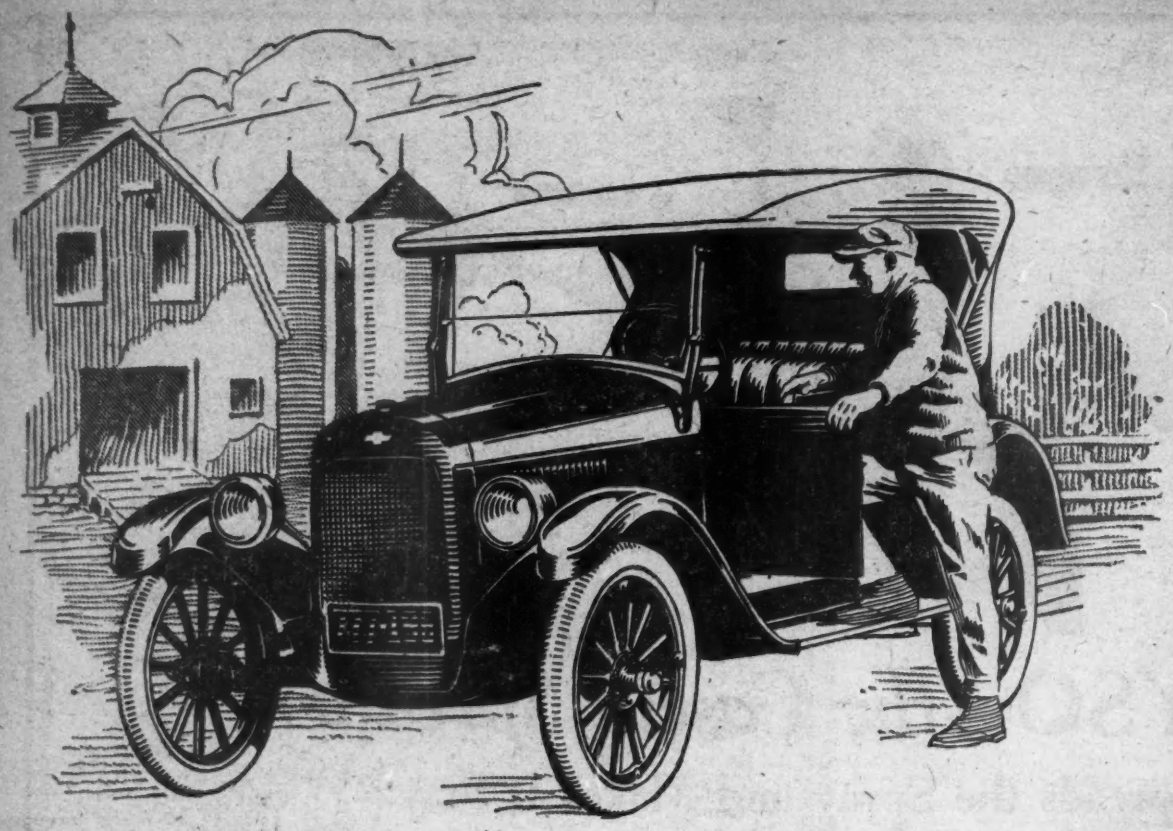
*Name* _____

*Address* _____



# Why Farmers are Turning to

CHEVROLET

*for Economical Transportation*

In 1922 Chevrolet jumped from seventh to second place in sales of all cars, and to first place in sales of fully equipped modern cars.

Purchases by farmers were the chief factor in this remarkable development.

Farmers are shrewd buyers and study costs and values carefully.

They want automobiles not only of low first price, but also of low later cost for operation and maintenance.

They want room, comfort and the ability to stand up under hard conditions.

They find that Chevrolet, fully equipped as sold is the best value per dollar in the low-priced field, and neighbors tell them it costs least per mile to operate.

They find it roomy, easy to handle and reliable.

They like its finish and its long stream lines.

That is why the farmer demand for Chevrolets is daily increasing its lead among modern, quality automobiles.

*Prices F. O. B. Flint, Michigan*

| | |
|---|---|
| SUPERIOR Two Passenger Roadster | $510 |
| SUPERIOR Five Passenger Touring | 525 |
| SUPERIOR Two Passenger Utility Coupe | 680 |
| SUPERIOR Four Passenger Sedanette | 850 |
| SUPERIOR Five Passsenger Sedan | 860 |
| SUPERIOR Light Delivery | 510 |

## Chevrolet Motor Company, Detroit, Mich.

*Division of General Motors Corporation*

There are now more than 10,000 Chevrolet dealers and service stations throughout the world

Applications will be considered from high grade dealers in territory not adequately covered


## The Washington Navel Orange

(*Continued from page 3*)

Following the discovery of the frequency of these strains, investigations were undertaken to improve the population of the variety by eliminating all other than the standard strain. Many orchards were found which had been largely propagated, unintentionally, from trees of very inferior strains and the percentage of undesirable trees in such plantings was very high. In other orchards the population of trees of undesirable strains was frequently found to vary from 5 to 50 per cent. Experiments in top-working trees of inferior strains demonstrated the possibility of changing the character of the trees and improving their production by the use of buds taken from trees which had been found to produce uniformly heavy crops of desirable fruit.

These studies were expanded to include the other citrus varieties and as the possibilities and advantages of the work were realized its commercial development was undertaken by the formation of a Bud Department of the Fruit Growers Supply Company, a subsidiary of the California Fruit Growers Exchange. This organization acts as a public service institution in supplying to anyone buds selected from superior trees upon which performance records have been secured for a number of years showing the uniform character and high production of the individual trees. Since the starting of this service in May, 1917 over two million buds have been furnished to growers and propagators, and citrus nurserymen in California and Arizona report a unanimous demand for trees grown from buds of this character.

It costs a few cents a tree more to propagate from selected parent trees of proven production but later cultural expenses are no greater and some operations such as pruning usually are less expensive than similar costs for trees of some of the strains having a tendency toward heavy vegetative growth. Trees grown from selected buds from superior performance record parent trees are frequently somewhat slower growing than are trees of some of the other strains but they usually are earlier coming into bearing and are normally regular and heavy producers of high quality fruit and it is crops that bring in profits.

## Winter Meetings

Maryland State Horticultural Society, Frederick, Md., January 10-12.

State Horticultural Association of Pennsylvania, in connection with State Farm Products Show, Harrisburg, January 22-27.

New York State Horticultural Society, Rochester, N. Y., January 10-12. Roy P. McPherson, secretary, Leroy.

Eastern meeting of New York State Horticultural Society, Poughkeepsie, February 21-23. Roy P. McPherson, secretary, Leroy.

Ohio State Horticultural Society, probably January 30-31 and February 1. R. B. Cruickshank, secretary, Columbus.

Wisconsin Horticultural Society, Madison, January 10-12. Frederick Cranefield, secretary, Madison.

South Dakota State Horticultural Society, Sioux Falls, January 16-18. Dr. N. E. Hansen, secretary, Brookings.

Massachusetts Fruit Growers Assn., in connection with Union Agricultural Meeting, Boston, January 16-19. A. W. Lombard, manager, Boston.


**PEACH TREES**

| THE RIGHT SIZE | THE RIGHT PRICE | |
|---|---|---|
| Size | Per 100 | Per 1,000 |
| 4 to 5 ft. | $25 | $200 |
| 3 to 4 ft. | 20 | 150 |
| 2 to 3 ft. | 15 | 125 |
| 1½ to 2 ft. | 12 | 100 |
| 1 to 1½ ft. | 10 | 85 |

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# Orchard Problems and their Solution

by Paul C. Stark
Associate Editor

## Age of Apple Trees

Will you give me your advice about age of trees to plant in a small commercial apple orchard in my state?—C. D. B., Ohio.

IN PLANTING apple, you should plant either a one-year or two-year tree. If you are going to follow the modified leader type of pruning, which is the type followed by many leading orchardists and recommended by many horticulturists, you will get best results by using a strong, vigorous, one-year tree. One-year trees are equally good for open head pruning. On my trip this summer, visiting central-western and northeastern orchards, I found a very strong and growing sentiment among most of the growers in favor of one-year trees, particularly since so many of them are taking up the modified leader type of pruning.

With the one-year tree, the position of the branches can be controlled much more easily and a better balanced and better shaped tree is the result. In a two-year-old tree, the branches are already placed.

The modified leader type of pruning produces a much stronger type of tree than the average open-head type of tree. The final result of the modified leader pruning is a strong main trunk, or axis, about 6 feet tall with seven to ten main limbs distributed equally up and down and around the trunk. If one of these limbs is broken off, it does not injure the tree as much as if it were an open-headed tree with the limbs very close together.

## Picking and Storage Problems

In case of car shortage at picking time, please advise best method of handling my crop of apples. Would it be better to leave the fruit on the trees, or pick and leave in boxes?—G. J. D., Washington.

YOUR question is somewhat difficult to answer as it depends on local conditions. The best way to do would be to pick the apples and store in the best storage or cellar available. However, if you haven't a cold storage or good cellar available, it would be better to leave fruit on the trees a few days longer rather than picking it and leaving it in the orchard in boxes. Bear in mind that the sooner you get your fruit to the proper temperature even in cold storage or ordinary storage, the better it will be. Fruit that is picked and kept at a high temperature will ripen and mature very quickly.

In common storage, the question of ventilation and humidity are very important. Keep the floor sprinkled so that the air will be moist. Experience has shown that abundant ventilation is essential to best results in common storage. With plenty of ventilation and moisture, the fruit will hold up remarkably well, in common storage.

## Careful Grading and Packing

Do you think it best to grade carefully and ship under a trade mark or brand? The extra expense and time is considerable, and I would like to have your idea as to whether it pays to put out the better grading?—C. A., Illinois.

I CERTAINLY believe in better grading, better marketing and the working up of a reputation for high quality fruit and careful packing. You will be surprised how soon the public will begin to ask for your brand of fruit if you stick to careful grading, and put out a pack that will mean repeat orders.

The wholesale apple buyers soon learn who does the careful packing and who is careless. I believe there is a big future in smaller packages, such as boxes, one bushel corrugated cartons and half barrels. A number of these are being tried out by growers in different parts of the country with good results.

Make up your mind to grow a high grade product and don't be afraid to ask a good price for it.

## Codling Moth Control

Please give me information about proper methods for control of codling moth in commercial orchards.—M. H. D., Washington.

THERE have been some recent developments in spraying that conflict with the former ideas regarding spray practices. For the Calyx Cup spray, which is the main application for the control of codling moth worm, Prof. Childs of Oregon has demonstrated that a high pressure and a nozzle that will break the spray up into a very fine mist gives best results. Formerly it was supposed that a driving, coarse spray was advisable for the Calyx Cup application. With the high pressure and a fine mist, the spray material settles into the upturned Calyx Cups. In the large commercial orchards, the tendency is towards high powered outfits that give high pressure. This is particularly true where the spray gun is used.

## Spreaders in Sprays

Would you advise me to use a spreader mixed in with my spray material for spraying apple and peach trees?—M. E. T., Missouri.

SPREADERS are a relatively new development from a commercial standpoint but most of the growers who have tested them out, report good results. Spray material applied to the fruit often collects in drops and does not thoroughly cover the surface of the fruit or foliage. The spreader tends to break up these drops and forms a thin film all over the fruit or foliage and in drying in this thin film, it leaves a solid protective covering of spray material. I expect to use spreaders in my own orchard and I know of many other growers who will do likewise.

## San Jose Scale

I am told that my trees are badly infested with San Jose Scale. Please give me information about how to rid them of this pest?—W. J. M., Neb.

THE regular dormant spray, thoroughly applied, should keep the orchard free from San Jose scale. Concentrated lime sulphur, one part to eight parts of water, has been recommended for the control of scale but too many growers are careless in the application and the scale gets a start. Use either lime sulphur or a good miscible oil. Scalecide is a miscible oil that is very effective in control of scale insects.

## Blotch on Duchess

Will you please tell me how I can control Blotch on my Duchess apple trees?—C. G., Illinois.

BLOTCH can be controlled by proper spraying with Bordeaux Mixture, or Lime Sulphur. The Duchess is particularly susceptible to blotch and if the blotch cankers once become firmly established on the young twigs of the trees, it is very difficult to control. By keeping your trees carefully sprayed to prevent blotch, is much the better way to keep it under control. Prof. W. S. Brock of Illinois Experiment Station has done some very helpful work in controlling blotch.


Send Today for Full Details About

"Fruit-Fog"

The Biggest Thing in Spraying

Hayes Pump & Planter Co.
Dept. 11
Galva, Ill.

Please send me folder and full details. I have ..... trees, aged ..... years.
Variety .....
Name .....
Address .....
Town .....
(Use march if necessary)

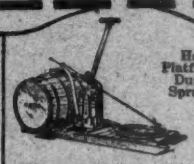
If you are interested in sprayers, write today and find out about FRUIT-FOG, which envelops every twig, leaf and bud like a mist and absolutely exterminates disease and pests. FRUIT-FOG practically guarantees you

**More fruit in poor years**
**Better fruit in good years**
**More profits every year**

FRUIT-FOG is the exclusive product of Hayes Power Sprayers—the result of 300 lbs. pressure, which is guaranteed.

**Prices Cut to Rock Bottom**

We are concentrating manufacture on a few models and have put prices at the very bottom. Every sprayer from smallest to largest has the same fine workmanship, develops the same high pressure, and gives you FRUIT-FOG RESULTS. Hayes Outfits vary principally in capacity.



Hayes Platform Duplex Sprayer

The most powerful hand-sprayer made—develops high and constant pressure. For small orchards which do not need a power sprayer.

Hayes Triplex—the monarch of high pressure sprayers. No. 1806—6 1/2-gal. sprayer with a great reputation.

**FREE!** Send today for new illustrated folder—get the advice of our spraying experts

Hayes Sprayers are long-lived, have low maintenance cost and our repair service is a particular feature. All distributors carry repairs. Hayes Pumps are cast en bloc with few parts, easily accessible. Valves, cylinders and plungers only ever need attention—and a grower can easily do his own repair work.

Distributors and dealers in all principal cities

HAYES PUMP & PLANTER COMPANY
Dept. 11 Galva, Illinois

*Full Line of Four-wheel Planters, Hand and Power Sprayers and Well Pumps*

**HAYES** "FRUIT-FOG" SPRAYERS

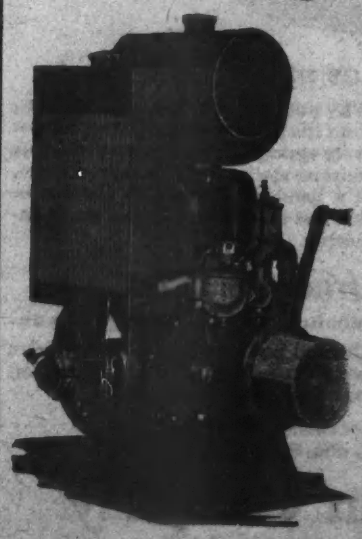
**REX** DRY LIME SULPHUR
Produced under our own patents.
Best quality at lowest price.

REX OIL EMULSION
At one-fourth the cost of other oil sprays.

Write us for full information and prices on quantity wanted.

THE TOLEDO REX SPRAY CO., Toledo, Ohio
Makers of the famous *NuReform* (Dry Lead Arsenate)

**Greater Capacity and Pressure**
**With a Lighter Engine**



That's what the fruit grower needs in spraying to produce the desirable "fog spray." In order to secure greater capacity and pressure, with lighter weight, leading manufacturers of sprayers have now standardized for their power on the high grade

**Cushman**

The 4 H. P. Cushman (weight 190 lbs.) is the proper size for the larger triplex orchard sprayers with a capacity of 8 to 10 gallons at 250 to 300 lb. pressure or more.

1½ and 3 H. P. Cushmans handle the smaller sprayers.

The 8 H. P. Double Cylinder Cushman, weighing only 320 lbs., is the ideal engine for the largest orchard and standard shade tree sprayers.

**Rebuild Your Sprayer**
with the famous Cushman Engine and get more power and pressure with less weight.

Write for free Catalog, mentioning the sprayer you have or expect to buy.

**Cushman Motor Works**
956 N. 21st Street Lincoln, Neb.

ORCHARD & FIELD MOUSE EXTERMINATOR

Used and recommended by the leading Fruit Growers of the country. Guaranteed to give satisfaction to the User. Write for circular giving information. Price $18 per gross.
N. J. WIGGINTON,
Winchester, Va.

**RED OIL FOR SCALE**

Ready prepared stock emulsion. Made from lubricating oil and Fish Oil Soap. Standard Govt. Formula. Six gallons makes 500 gallons spray. Cheapest and most efficient scale killer known. Ask your Experiment Station all about this new formula. Costs less than Lime Sulphur, 40 per cent better kill. PRICES: 50 gallon barrel, 40c a gallon. Half barrel 42c a gallon. Freight paid. S. H. Burton, Western Distributor, Washington, Ind.

# Orchard Heating PAYS

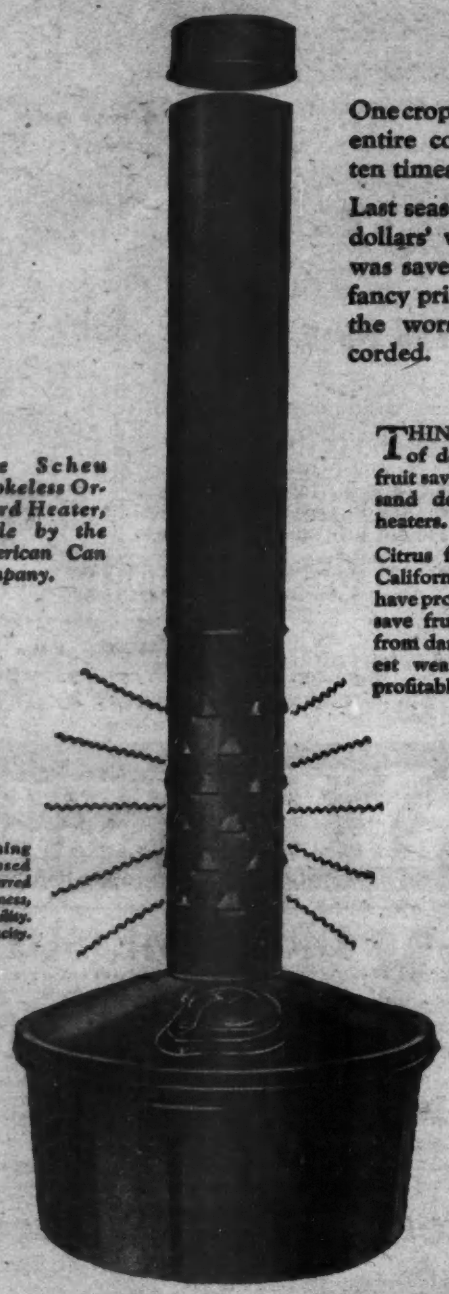
**One crop saved, returns entire cost of heating ten times over.**

**Last season millions of dollars' worth of fruit was saved and sold at fancy prices, in one of the worst freezes recorded.**

**THINK of it! Millions of dollars' worth of fruit saved by a few thousand dollars' worth of heaters.**

**Citrus fruit growers in California and Florida have proved that they can save fruit and orchards from damage in the coldest weather, and do it profitably.**

*The Scheu Smokeless Orchard Heater, made by the American Can Company.*



*9 gallon oil-burning heater, with pressed steel bowl. The preferred type, in effectiveness, cost, weight, durability. Also in 7 gal. capacity.*

## *The heater that has made good*

The ideal frost protection device is the Scheu Smokeless Orchard Heater, made by the American Can Company. *This heater has been approved by the Fruit Growers Supply Company, Los Angeles, representing 10,000 growers of Sunkist Oranges and Lemons.*

Why not protect *your* crop, *your* trees, from the frosts that work havoc almost every spring? You can save deciduous fruits no matter where you grow them, at a handsome profit, by the heater that has made good in the citrus industry.

## *How to save your fruit from frost*

The requirements are three: heaters of the right type, organization, vigilance. We can furnish you with the first, we can advise you about the second—the third is up to you.

Orchard heating pays. Write us direct (or our nearest agent) for convincing examples and information.

*In addition to the Scheu Heater, we make 10 qt. smudge pots, 3, 5 and 7 gal. Canco Heaters, and 6 qt. Canco torches.*

## American Can Company

ORCHARD HEATER DEPT.

Toledo, Ohio

*Orchard Heater Agents*
Pacific Coast States—
W. C. SCHEU
Los Angeles, California

Florida—
PIET VLAG
West Tampa, Florida

CANCO


# MARKETS AND MARKETING

## Peaches in 1922

THIRTY-SIX thousand cars of peaches were moved from 30 states in 1922, according to a recent report from the United States Department of Agriculture. This was 9000 more cars than last year's shipment and almost 10,000 cars above the five year average for the years 1917-21. Three states alone, New York, Georgia, and California shipped a total of 22,000 cars, or 60% of the total shipment. The following table will be of interest to all peach growers:

Carlot Shipments of Peaches, by States

| State. | 5-yr. average, 1917-1921. Cars. | Total 1921. Cars. | Total, 1922 Cars |
|---|---|---|---|
| Alabama | 115 | 47 | 25 |
| Arkansas | 950 | 596 | 1,518 |
| California | 6,035 | 7,606 | 8,365 |
| Colorado | 1,155 | 1,219 | 1,432 |
| Connecticut | 55 | 73 | 1 |
| Delaware | 145 | | 422 |
| Georgia | 7,125 | 10,636 | 7,347 |
| Idaho | 125 | 103 | 124 |
| Illinois | 175 | 1 | 1,660 |
| Indiana | 25 | | 350 |
| Maryland | 460 | 1 | 426 |
| Michigan | 655 | 198 | 1,570 |
| Missouri | 75 | 1 | 278 |
| New Jersey | 885 | 5 | 1,507 |
| New Mexico | 35 | | 3 |
| New York | 3,460 | 2,840 | 6,521 |
| North Carolina | 225 | 589 | 1,435 |
| Ohio | 270 | 76 | 200 |
| Oklahoma | 285 | 42 | 153 |
| Oregon | 45 | 60 | 46 |
| Pennsylvania | 370 | 45 | 208 |
| South Carolina | 50 | 31 | 78 |
| Tennessee | 130 | 218 | 248 |
| Texas | 1,075 | 964 | 26 |
| Utah | 815 | 839 | 1,103 |
| Virginia | 140 | | 228 |
| Washington | 1,215 | 1,097 | 958 |
| West Virginia | 440 | | 7 |
| Other States | 29 | 13 | 28 |
| Total | 26,564 | 27,300 | 36,267 |

On the whole the season this year was two weeks later than in 1921. This was true of all districts except Georgia, the season opening there on May 29th of this year against June 13th of last year. The North Carolina season this year began July 17th against July 4th last year and New York peaches from September 11th against August 29th a year ago.

As is to be expected with such a large crop, prices did not equal the figures received in 1921 and there were several peaks in the market when there was a rather sharp decline in prices realized. Georgia, however, fared very well. Owing to the fact that their crop was lighter than a year ago and there was little competing fruit on the market the prices received at the beginning of the season being higher than those received a year ago. North Carolina peaches last year ranged from $2.00 to $5.50 and this year from $1.75 to $3.75. Peaches from Delaware, Maryland and New Jersey this past year ranged from $1.25 to $3.00 while New York peaches this year ranged from $1.00 to $3.00 against a range last year from $2.75 to $5.00. Arkansas peaches, which were a big factor in the market this year, ranged from $1.75 to $4.00. Last year the range was $2.50 to $4.25.

GENERAL MANAGER, E. G. Bezell, of the California Fruit Growers' Exchange, Los Angeles, has just issued his annual report. This report is always very interesting. Although handicapped by a disastrous freeze this year, California did a tremendous business in citrus fruits. The crop included over 12 million boxes of oranges, and 4 million boxes of lemons. The amount of money received for the crop in California amounted this year to over $71,000,000, while over $95,000,0000 was received at the delivery end and over $24,000,000 was paid for freight and refrigeration.

The Exchange controlled slightly over 27,000 cars, or about 68% of the tonnage. The Exchange this past year handled over 10,000 cars of Navel oranges as compared to over 18,000 cars a year ago. The Valencia orange crop consisted of 9,273 cars compared to an excess of 18,000 the previous year. California produced nearly 10,000 cars of lemons this past year compared with nearly 12,000 cars a year ago. The total supply of lemons handled in this country this year, including importations, was about 15,000 carloads.

The Exchange's cost for doing business was only 7.7% per box, which is less than the cost was ten years ago. This is a remarkable record when one considers how much more expensive it is to do business than was true ten years ago. The District Exchange's cost amounted to 1.8% per box, making a total average operating cost of 9½c a box, or only 1.69% of the delivered value of the fruit.

The Exchange is very enthusiastic over the results obtained by their advertising department this past year, 3½c per box on oranges and 6c a box on lemons. Recipe books were sent to 145,000 persons. Their reports show that 3000 jobbers and over 400,000 retailers sell citrus fruits. They obtained remarkable results from their dealer service, coupled with their efficient advertising. Nearly 6000 electric juice extractors were placed in soft drink establishments, thus enabling them to use large quantities of small oranges.

The Fruit Growers' Supply Company, a subsidiary of the Exchange, this year did over $6,000,000 worth of business in furnishing packing and growing supplies.

## Tariff on Fruit

THE recent tariff bill passed by Congress gives the following protection to fruit.

Apples, 25c a bushel.

Cider, 5c a gallon.

Apricots, green, ripe, dried, or in brine, ½c a pound.

Figs, fresh, dried, or in brine, 2c a pound.

Raisins, 2c a pound.

Peaches and pears, ½c a pound.

Pineapples, in bulk, ¾c a pound.

Marmalades, jellies and fruit butters, 35 per cent.

Grape juice, containing less than one per cent alcohol, 7 cents a gallon and $5 a proof gallon the alcohol; Payne—Aldrich and Underwood no corresponding provisions.

Lemons, 2c a pound.

Limes, oranges and grapefruit, 1c a pound.

Lemon juice and lime juice containing less than two per cent of alcohol. Citric acid, 17c a pound.

Almonds, unshelled, 4¾ cents a pound; shelled, 14 cents a pound.

Brazil nuts, 1c a pound.

Cocoanut meat, shredded, 3½c a pound.

Peanuts, unshelled, 3c a pound; shelled, 12c.

Olives, in brine, green or ripe, 20c a gallon; pitted or stuffed, 30c; dried, ripe, 4c a pound.

Olive oil in containers, 7½c a pound; in bulk, 6½c a pound.

THE Bureau of Agricultural Economics of the United States Department of Agriculture, Washington, D. C., is issuing a new set of mimeographed papers entitled, "Agricultural Cooperation." These papers deal with the legal, economic and organization information collected by the Bureau and will prove of great value to officers of cooperative associations.

## Coining Money Out of Concords

(Continued from page 7)

better off than where every vine is pruned to the same number of buds.

### Selecting the Cane

After deciding how many buds we intend to leave on a vine, it is necessary to decide which canes we shall select to carry our fruit. All other things being equal, we should select canes that grow from points close to the trunk of the vine, so that the canes from neighboring vines will not overlap when tied. Overlapping canes will produce shoots and bunches that interlace, increasing the difficulty of harvesting the crop. However, we should not select poor fruiting wood to carry the crop, merely because it grows from a point close to the trunk—for we must select wood that will give us a good crop next summer. Just follow out the arm from the trunk and take the first good cane that we find and leave one-quarter of the desired number of buds upon it. This cane should be about a quarter of an inch in diameter between the fifth and sixth joints, and the joints should not be too long. If the cane is heavier than that and carries a number of side branches, it is a good practice to save one or two buds on each of those branches, that have made a foot or more growth, for fruiting buds, counting them toward the total to be saved on that cane. These buds will be more fruitful than the average bud on the main cane, but they are more subject to injury by spring freezes, so they should not be the main reliance for the crop.

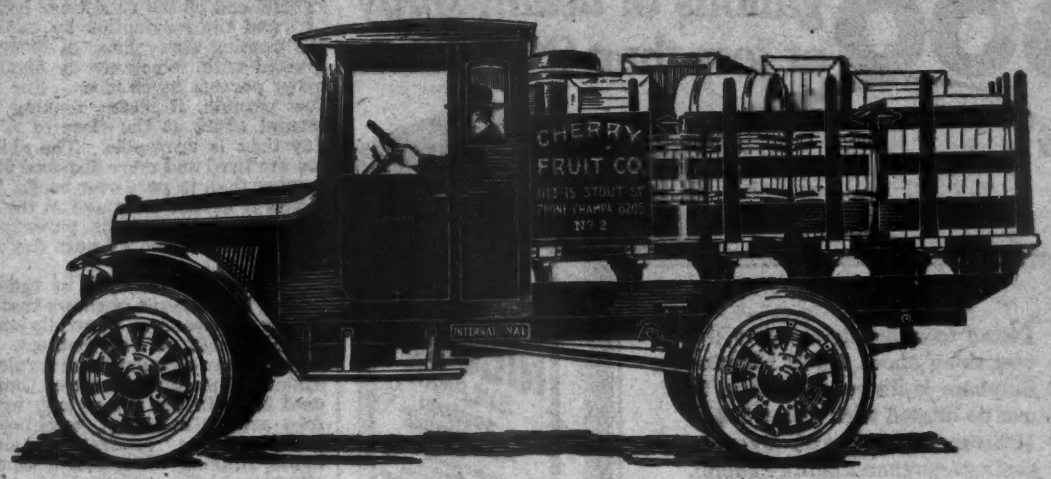
Where the cane saved comes from a point much removed from the trunk, it is necessary to leave another cane or two buds, or a spur, to provide renewal from close to the trunk, otherwise the fruiting wood will become more and more distant from the trunk each year. Many growers tend to leave too many spurs which is as bad a practice as leaving no spurs at all, because these buds are relatively unfruitful and divert the strength of the vine from the canes where it should go. Only leave spurs where they are necessary to provide suitable renewal for next year's canes.

### Profits In Grape Growing

The profits in grape growing have been very large the past few years, and almost anyone with a vineyard has made a profit. The number of vineyards is increasing to supply the increased demand. Sooner or later the supply will overtake the demand, though we do not attempt to say when that day will come. When that time does come, however, the man with the vineyard with a low cost of production per ton—the man with the vineyard making good yields nearly every year—will be able to continue to make profits; but the man with a poorly located vineyard who loses too large a proportion of his crops by frosts or freezes or the man who does not get the utmost from his vineyard every year, even though it be in a favorable location, will have to quit the business. The wise grower plans his vineyard practices so that he will get the yields when the time of stress arrives.

## Peach Problems

WHERE borers are attacking the peach trees badly, use Paradichlorobenzene this fall. Often peach trees will gradually die, simply from the attacks of the borers. Where the leaves fall badly from peach trees it may be due to a number of causes. If the foliage has been burned by spray it will sometimes cause a defoliation. The attacks of brown rot will cause the foliage to roll, turn brown and drop, and often causes an injury to the twigs themselves. Peach scab will cause spots on the foliage which are generally irregular and not very large, looking somewhat like the spots caused from spray burning.


# Orchard Profits and the International Speed Truck

JUST as thousands of McCormick-Deering dealers have increased their service facilities with International "Red Baby" trucks, so are many orchardists enjoying successful partnerships with the "Red Baby's" brothers. After all, the service is much the same—in each case the International is helping its owner by doing all important hauling at a low ton-mile cost.

Undoubtedly there are many jobs on *your* orchard farm that could be done better with a good motor truck. Why don't you make it a point to talk the matter over with the McCormick-Deering dealer in your community? You will find the International Speed Truck has a number of features that mean easier, more dependable farm transportation.

For the average orchard or farm the Speed Truck affords ample capacity—for heavier work there are other sizes as listed at the left. Each model is sturdily built, and is backed by the International Free Inspection Service Policy that provides free inspection of the truck at regular intervals.

International MOTOR TRUCKS

Sizes:

| 2,000-lb., Speed Truck | |
|---|---|
| Model 21, | 2,000 lb. |
| Model 31, | 3,000 lb. |
| Model 41, | 4,000 lb. |
| Model 52, | 5,000 lb. |
| Model 61, | 6,000 lb. |
| Model 101, | 10,000 lb. |

*Buy International Motor Trucks for Low-Cost Hauling*

INTERNATIONAL HARVESTER COMPANY OF AMERICA (INCORPORATED)

CHICAGO USA

*93 Branch Houses and 15,000 Dealers in the United States*

**Strawberry Plants.** $3.00 per 1,000
Hilmoy and valuable illustrated book free. You will learn Address, Magee's Plant Nursery, Merrill, Mich.

# KITSELMAN FENCE

**You, Too, Can Save**

"I saved just $9 per cent and am more than pleased with the fence," declares E. J. Sheppard, Ankeny, Iowa.

"I saved $25.10 on the 270 rods of 47 No. 9 Fence. It's the best fence in my vicinity," says John W. Kemp, Alton, Indiana.

**Direct from Factory to Farm**

You, too, can save money. Our thousands upon thousands of regular customers are cutting their fence costs to the very bone by buying direct from us at Lowest Factory Prices. The quality of Kitselman Fence was never higher; prices are way down. Buy now and keep the difference in your own pocket.

**We Pay the Freight**

Let us send you our Free 100-page Catalog of Farm, Poultry and Lawn Fence, Gates, Posts, and Barbed Wire. Write today for this money-saving book.

KITSELMAN BROS., Dept. 208 MUNCIE, INDIANA.
America's Oldest Fence Manufacturers.

# BEES MAKE BETTER FRUIT

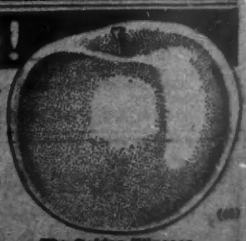
To secure best yields you should have bees. Most of the "June Drop" is due to a lack of bees. Our Free Booklet "*Bees and Fruit*" tells you how to stop this loss.

WRITE FOR FREE BOOKLETS:
"*Bees for Pleasure and Profit*" for you who want to begin beekeeping. "*Better Beekeeping*" for you who want to keep your bees better. Our Big Catalog for you who are experienced beekeepers. Tell us your occupation.

The A. I. Root Co., Box 332, West Side Sta., Medina, O.

Root BEE SUPPLIES

# A Truly Wonderful Apple!



**Just imagine an apple** with the juicy tartness of the Jonathan, the meatiness of the old Winesap, the beauty of the Winter Banana, the deep gold color of the Grimes and the keeping qualities of the good old Ben Davis. That's the Golden Winesap.

It is a new apple, introduced only a few years ago, but has remarkable qualities. I prefer it to Delicious or Jonathan. It originated in Utah and should be hardy most anywhere. You will find this Golden Winesap in my catalog only, and prices are very reasonable.

**The Old Reliable True Delicious**

Almost everyone is familiar with the Delicious. Fruit is large, dark red, with a sweet flavor slightly touched with acid; fine-grained, crisp, juicy. Comes out of storage in April in perfect condition. Very hardy. Our prices for trees are very low. Fully described in our free book. My book is free. Send me a free copy. It tells you the truth about trees as well as the usual points about everything. It fully describes, with very low prices, a complete line of trees, shrubs, seeds, etc. Send a Post Card for a free copy. Carl Sonnenmann, President

The Golden Winesap

True Delicious

SONNENMANN NURSERY AND SEED HOUSE, 27 Court Street, BEATRICE, NEBRASKA

# 800 gallons of *deadly spray* at less than 2¢ a gallon

NEXT to its deadly certainty, the best thing about Hall's Nicotine Sulphate is its very low cost. It can be diluted with water 800 to 1000 times to make a deadly spray costing *less than 2 cents a gallon.*

Hall's Nicotine Sulphate contains 40% pure Nicotine—the most powerful contact poison known. Being a *vegetable* extract, it will not harm fruit, flower or foliage. But it will wipe out aphids, thrips and similar insects. Use it next season.

Buy from your dealer. If he is not supplied, send us your order along with his name.

10 lb. tins— $13.50
2 lb. tins— 3.50
½ lb. tins— 1.25
1 oz bottles— .35

10 lb. tins make 800 to 1000 gallons of spray.

HALL'S
NICOTINE SULPHATE

HALL TOBACCO CHEMICAL CO.
3961 Park Ave., St. Louis, Mo.



## Controlled Cultivation

## Planet Jr.

A steady horse and a balanced hoe-harrow mean fast, clean work for the man between the handles. The Planet Jr. No. 8 makes cultivating a pleasure. It is the most highly developed one-horse implement you can get. The width and depth of work are always under perfect control, to be changed instantly by convenient levers within easy reach. No. 8 is a strong, stiff implement, specially braced, easy to run without having to press towards the row. The fast, thorough work it does and its strength and endurance, make it the tool for every man who knows the cash value of rapid, clean cultivation.

Other types of Planet Jr. cultivators (hand, horse, riding and tractor) and the famous Planet Jr. seeders, are detailed in the Planet Jr. catalog. Send for a copy, and name of nearest Planet Jr. agency.

This mark and the name "Planet Jr." identify our products

S. L. ALLEN & CO., Inc.
Dept. 26
8th & Glenwood Ave. Philadelphia, U.S.A.



## SAVE MONEY

Look over this list of reduced prices on your favorite magazines. These prices are for a limited time only and as they are subject to withdrawal at any time you had better send your order now if you wish to take advantage of the saving offered.

AMERICAN FRUIT GROWER (3 Years)

| | | | | | |
|---|---|---|---|---|---|
| With | Farm and Fireside (1 yr.) | $1.00 | With Michigan Farmer (1 yr.) | | $1.25 |
| " | Southern Ruralist " " | 1.00 | " Ohio Farmer " " | | 1.25 |
| " | Tractor & Gas Engine Review " " | 1.00 | " American Poultry Advocate " " | | 1.25 |
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| " | Pennsylvania Farmer " " | 1.15 | " Holstein-Friesian Register " " | | 1.25 |
| " | McCall's Magazine " " | 1.25 | " Gleanings in Bee Culture " " | | 1.60 |

If none of the above interest you, we will be glad to have you submit your own club to us for a price. We will allow you the publishers' special discount price providing the AMERICAN FRUIT GROWER MAGAZINE is included.

AMERICAN FRUIT GROWER MAGAZINE, 53 W. Jackson Blvd., Chicago



## Make Your Own Lime-Sulphur Solution

Any fruit grower can now make, with minimum labor and expense the best possible Lime-Sulphur Concentrate at an enormous saving by using the H. & M. Lime-Sulphur Machine. Easy, cheap and certain. For full information write:

WINCHESTER ORCHARD SUPPLY CO., Winchester, Va.


## Study Hour in 1923

By Mary Lee Adams

THE end of the Christmas holidays and the resumption by pupils of the evening study hour at home, are greeted with reluctance by almost as many parents as children. For not a few parents, it means making more mental effort at the close of a busy day than is agreeable. The children too are tired and more disposed to rest or play than to pore over books. This makes it harder all round in the family where conscientious parents help in the preparation of next day's lessons.

Fathers are included in these remarks, but experience shows that they are by no means so generally victims to this habit as are mothers. The farm woman of today is as a rule, less exhausted when night comes than she used to be in the not so long ago before sewing machines, washing machines, cream separators, electric lights, running water and a thousand other modern conveniences came to lighten her daily toil.

But still, after the supper dishes are put away, an easy chair and repose are particularly inviting to the woman who has all day long fulfilled her many housewifely duties.

### May Be Too Unselfish

Mothers will continue endlessly to sacrifice themselves for the good of their children. Now and then an uneasy doubt enters the mother's mind, or is forced upon her by the remarks of others, as to whether she is really doing the best for her children by smoothing the rough places for them.

If she has ordinary ability, there can be little doubt that Johnny will get better marks in school because she has worried over his lesson for him. But the crux of the whole question is whether Johnny's mind would be strengthened by making an effort to master his own difficulties. It matters but little, or not at all, whether that effort be immediately successful.

The best short definition I ever heard of the true object of education, was that it aimed to establish the capacity for self-direction. The time comes to every boy and girl when there is no one on whom they can call to solve their problems. It becomes important to them to be capable of self-direction. This capacity can only be assured by developing self-reliance. So long as a child knows he can turn to a superior intelligence in every difficulty, all incentive to rely upon himself is taken from him.

### Why Rabbits Climb Trees

"Needs must when the devil drives." Uncle Remus saw this quite clearly when he justified one of his most amazing tales of Brer' Rabbit's prowess, to the little boy who almost suspicioned that the old darkey was nature faking. "Why, Honey," he explained simply, "dat rabbit jes' 'bleeged to climb dat tree."

More human rabbits have climbed trees from this cause, than they who reach the top suspect. To be "jes 'bleeged" to do what we can't do, is about the best thing that ever happens to us. So when the lazy child, or the child so full of play that he finds it hard to settle down, complains in good faith, "It's no use. I just can't do this or that. Please Mama come and help me," it is a wise mother who stops to decide whether the task is really beyond his powers or merely beyond his inclination, and who is guided accordingly.

### A Puzzling Question

Yet the matter is not so easily disposed of as that. Given the ideal school, it might work well not to let the children bring their lessons home at all. But this ideal has never, so far, been even approached in rural schools such as most of our children attend. In many, the schedule of school hours does not contemplate the possibility of preparing next day's tasks before going home.

More than this, the minute salaries of rural school teachers in many localities, are sufficient proof that the

(Continued on page 28)


## SPRAY

GET BETTER FRUIT AND TIP-TOP PRICES

There is no market for knotty, gnarled fruit and wormy apples. Spray with the right material at the right time and give nature a chance to grow her finest. You will find just the spraying appliance you need in our famous line of

## OSPRAYMO

### High Power Sprayers

An Ospraymo Sprayer means a high-power sprayer, and high power is most important. You are sure to make your spraying job effective.

Gasoline Engine Orchard Sprayer

Above is a popular style of power sprayer for general orchard spraying. Investigate our mounted traction Red Jacket and Yellow Jacket Sprayers for beans, potatoes and vegetables. Also Barrel, Bucket, Knapsack and Hand Sprayers.

Send today for our latest catalog. Don't buy any sprayer until it comes. We have local dealers at many points, but write direct for catalog to the address below.

FIELD FORCE PUMP COMPANY
Dept. B, Elmira, N. Y.
*40 Years at Sprayer Building*



## *This is* THE Grape *for you*

GREEN'S CACO GRAPE

Developed from Catawba-Concord parentage.

IT'S NEW—a very early delicious red grape.

ACTUAL SIZE CACO GRAPE

Caco is wonderfully hardy, tasty and beautiful. Good size; compact form; rich in sugar—it's healthy and prolific. We endorse it as a great grape.

GREEN'S OTHER SPECIAL FRUITS ARE

**Syracuse Red Raspberry**—a super-raspberry of double size. The highest flavor; very hardy; abundant bearer.

**Bose Pear.** Extra large; distinctive shape; delicious, buttery flavor. Vigorous grower.

**Rochester Peach.** Beautiful bright cheek; highest quality. Unusually hardy; earliest yellow peach; bears soon after planting.

Green's Trees—Plants—Vines

Green's trees grow—true to name. They are straight, smooth and well formed. Perfect root system. Standard tested varieties; northern grown. Apple, Peach, Pear, Plum, Cherry, Quince and Shade Trees.

For the garden and lawn—Currant, Gooseberry, Blackberry, Raspberry, Strawberry, Shrubs and Grapevines. No agents.

### Green's Free 64-page catalogue

A real text book on growing things. Write for it today. Also ask for C. A. Green's free booklet on "How I Made the Old Farm Pay."

Green's Nursery Co., 117-127 Green St., Rochester, N. Y.



## BOX OF SEEDS—10c

This is a Wonderful Box of Seeds and will produce bushels of Vegetables, Fruits and Flowers.

The following 10 Packets of Seeds will be mailed to any address for only 10c.

1 Pkg. (300 seeds) Cabbage—90-day—Produced heads in 60 days.
1 " (200 " ) Lettuce—Earliest or 12-day—Record breaker.
1 " (100 " ) Radish—Red Bird—Earliest of all reds.
1 " (100 " ) Vegetable Peach—Fine for preserving.
1 " (1000 " ) Turnip—6 Wks. either ball—Quickest grower.
1 " (150 " ) Tomato—Early Tree—best of all Erect growers.
1 " (25 " ) Garden Berry—Fruits in 4 months from seed—good for Preserves and Pies.
1 " (50 " ) Aster-Bouquet—1 plant is a gorgeous bouquet.
1 " (1000 " ) Poppy—Firefly—Most gorgeous poppies grown.
1 " (2000 " ) Flowers—27 varieties—Great mixture—Wonderful colors.

I Guarantee you will be more than pleased. New 1923 Seed Book of the best Vegetable and Flower seeds—many Novelties in Colors, free to all. Order today.

F. B. MILLS, Seed Grower, Box 30, ROSE HILL, N. Y.

## The King of Kings

(Continued from page 10)

from Pan American—Bismark and Dunlap. Early Jersey Giant is a cross of Chesapeake and Alfonso III (European origin.) Pan American-Bismark is a cross of Vanlleman and Bubach $5. Dunlap is a descendant of Cumberland and Crescent (Chance Seedling.) Van Deman came from Capt. Jack (Seedling of Wilson) and Crescent. Green Prolific and Jucunda (European origin) produced the Cumberland. There are other crosses connected with this pedigree but we have not the room to give complete records in the proper form, but when you study the different famous varieties and important crosses included in this Pedigree you will better understand why the Rockhill is the greatest of all strawberries. Mr. Rockhill can vouch for the correctness of the Rockhill and Progressive parentage; other ancestors are supported by the highest authority and the best strawberry history.

The rows of the Rockhill in June are said to be a blaze of red. During the summer and fall the high bearing characters are maintained. In addition to a very heavy fall crop of berries, this variety is said to produce as many berries in the early summer as the very best yielders of our June variety. With some everbearings the berries tend to become small as the season progresses but this variety is said to maintain large, highly colored, richly flavored fruit throughout the entire season, and, coupled with these qualities, are good marketing characteristics. The berry has the size, the shape and the color to commend it to all. So far the berry has been tried under numerous soil conditions in both the states of Iowa and Michigan and has been given a trial since 1918 and has been successful in every instance.

Years ago we used to think of everbearing as only for the home garden. Now, we have an everbearer which will be good for strawberry growers in the vicinity of every strawberry consuming center and if this berry has the remarkable keeping and marketing qualities as it is said to possess, there is no reason why it will not ship as well as any of our standard varieties.

### The Purchaser

F. E. Beatty has always been a great lover of plants and especially a lover of good plants. For years he had an ideal, a dream, and after all, the big things in life worth while are accomplished by men who have faith and vision, men who dream. These are the fellows that blaze the trail. Beatty's ideal has always been to bring out better and better strawberries and to finally introduce to strawberry growers something better than they had ever hoped for. He has had a lifelong ambition to contribute something really worth while to his branch of horticulture.

Years ago Mr. Beatty was a high salaried salesman, making a great success of his profession. He gave up this fine salary, this sure proposition, to venture on an unknown sea. It took nerve to do that, it took love of plants and love of strawberry growing to prompt a man to take a step such as he did.

Great credit must be given to Mr. Beatty to be willing to pay as large a sum as $50,000 to the originator of the world-eating strawberry, a price which is commensurate with the accomplishment of the plant breeder. To the Rockhill everbearer the American horticultural world drinks a toast: "Hail to the new king strawberry—the king of all the fruits, for it has been said God might have made a better fruit than the strawberry, but he never did."

There's a reason why you should use

SHERWIN-WILLIAMS

ARSENATE OF LEAD and ARSENATE OF CALCIUM

Sherwin-Williams Arsenate of Lead and Calcium Arsenate are known throughout the fruit, cotton, tobacco, and vegetable growing sections of the world for the satisfaction they give.

Many growers think and are led to believe that all makes of Arsenate of Lead and Arsenate of Calcum are the same in quality—that the government has established a standard to which all must conform. It is true that such standards exist and also true that all makes of Arsenate of Lead and Calcium Arsenate meet (or should meet) these standards but it is far from a fact that one make or brand is as good as another.

The quality for which Sherwin-Williams Arsenate of Lead and Calcium Arsenate are noted does not come from simply meeting certain chemical specifications. They conform to these standards, of course, but they go beyond and exceed them. The reason—tested raw materials, up to the minute manufacturing facilities, chemical and manufacturing skill and years of experience.

Sherwin-Williams quality is supreme—our prices are consistent with this quality and the raw material market. Our distributing facilities are without equal in the insecticide industry. We are ready to give you service.

**Arsenate of Lead**

| | Carload | 15,000 lbs. to 30,000 lbs. | Less than 15,000 lbs. | Broken Case Lots |
|---|---|---|---|---|
| 200 pounds | 24c lb. | 25c lb. | 26c lb. | |
| 4-lb. bags packed 100 lbs. to case | 24 | 25 | 26 | |
| 4-lb. bags packed 48 lbs. to case | 24 | 25 | 26 | |
| 100 pounds | 24½ | 25½ | 26½ | |
| 50 " | 25 | 26 | 27 | |
| 25 " | 26½ | 27½ | 28½ | |
| 5 " | 30 | 31 | 32 | 33 |
| 1 " | 32 | 33 | 34 | 35 |
| ½ " | 36 | 37 | 38 | 39 |

**Arsenate of Calcium**

| | Carload | 15,000 lbs. to 30,000 lbs. | Less than 15,000 lbs. | Broken Case Lots |
|---|---|---|---|---|
| 100 pound pkge. | 19c lb. | 20c lb. | 21c lb. | |
| 50 " | 20 | 21 | 22 | |
| 25 " | 21 | 22 | 23 | |
| 5 " | 23 | 24 | 25 | 26 |
| 1 " | 26 | 27 | 28 | 29 |
| ½ " | 30 | 31 | 32 | 33 |

These prices are f. o. b. our factories freight equalized with the following manufacturing points: Bound Brook, N. J., New York, N. Y., Middleport, N. Y., Baltimore, Md., Reading, Pa., Boston, Mass., Philadelphia, Pa., Cleveland, Ohio, Toledo, Ohio, Midland, Mich., Chicago, Ill., Milwaukee, Wis., Louisville, Ky., and Grand Junction, Colo.

All shipments f. o. b. our warehouse points will be on basis factory prices (outlined above) with tariff rate of carload freight added from the nearest of the above manufacturing points to warehouse.

NOTICE—Prices subject to change without notice.
All orders accepted subject to our ability to fill.
A carload consists of a minimum of 30,000 pounds net weight.

All goods sold only through jobbers, agents and dealers; inquiries should be made from these agents and dealers. Where you cannot conveniently find one of our distributors please address us for full information.

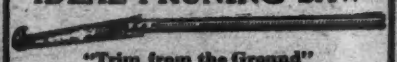
THESE PRICES APPLY ONLY TO TERRITORY EAST OF THE ROCKY MOUNTAINS

THE SHERWIN-WILLIAMS CO.

600 CANAL ROAD, N.W., CLEVELAND, OHIO

MAKERS OF INSECTICIDES AND FUNGICIDES
COVERING EVERY REQUIREMENT OF SPRAYERS OF FRUITS, VEGETABLES, TOBACCO, COTTON, ETC.

"IDEAL PRUNING SAW"



"Trim from the Ground"

Used throughout the U.S. Comes equipped with 8 foot handle, price $2.50 prepaid on receipt of price. Order now. Agents and Dealers wanted. Make good money, liberal commissions allowed.

IDEAL PRUNING SAW CO.
501 Granite Bldg. Rochester, N. Y.

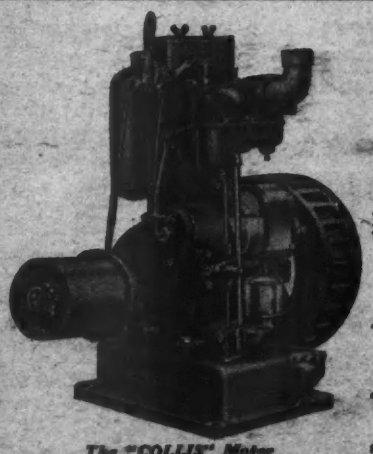
BOYCE SPRAY GUN

Just what you have been looking for. The only double nozzle Spray Gun possessing both short and long range. Adaptable for any power spraying, with a capacity of seven gallons per minute and upwards.

One man can handle full capacity of any spray rig with best possible results, saving time and material, and this saves money.

Tested and approved by leading Fruit Growers in all fruit States. Hundreds of voluntary testimonials. $15.00 delivered to all parts of U. S. Parcel Post or Express C. O. D. Satisfaction Guaranteed or money refunded.

WM. E. BOYCE - Albion, N. Y.



The "COLLIS" Motor
COMES READY TO GO
and
DOES GO

THE COLLIS MOTORS

will solve
THE POWER PROBLEM ON YOUR SPRAYER

Replace that UNSATISFACTORY or WORN OUT SPRAYER ENGINE with a

"COLLIS"
POTATO DIGGER POWER

The "COLLIS" can be mounted on any standard make of power digger.

Use a 5 H. P. Motor for a 5 H. P. job.

FOR GENERAL USE

The "COLLIS" takes care of ALL power needs between 2 and 5 Horsepower.

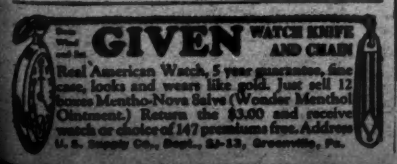
The "COLLIS" Motor is standard equipment on NIAGARA DUSTERS.

THE COLLIS COMPANY
Lincoln Highway
CLINTON - - IOWA

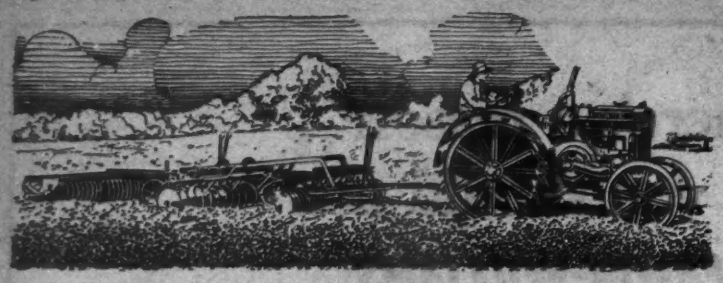
Send your catalog AB-2 to.....

Address.....Motor to be used on.....

GIVEN WATCH KNIFE AND CHAIN



Real American Watch, 5 year guarantee, fine case, looks and wears like gold. Just sell 12 boxes Mentho-Nova Salve (Wonder Menthol Ointment.) Return the $3.00 and receive watch or choice of 147 premiums free. Address U. S. Supply Co., Dept., B2-13, Greenville, Pa.



# TIMELINESS
## A PRODUCER OF FARM PROFITS

"Time is the essence of good farming." Timely work improves the quality of every farm crop, often increases the yield and always produces a better profit.

Timeliness in preparing good seedbeds; in planting crops; in harvesting crops; in preparing them for market or feeding; in Fall work and belt work, is assured by the use of

CASE
FARM TRACTORS

With a Case tractor you can get *every* important field or belt job done *on time*. This is one of the best forms of crop and profit insurance you can have. Case tractors assure *timeliness* in all farm work because:

They are practical, well adapted to all drawbar and belt work on a farm, and easily operated by farmers.

They have well balanced, steady running engines of the most efficient type, built to stand up under strenuous work and with ample reserve power. A simple carburetor and specially designed manifolds with heat control enable Case engines to operate with extreme economy on low grade fuels.

A rigid frame holds all bearings, shafts and gears in permanent alignment.

Power is transmitted to both drive wheels through a train of simple spur gears, all of forged steel with cut teeth, enclosed and operating in oil.

All friction surfaces either run in oil or are provided with ample, positive lubrication, are enclosed and protected from dust and dirt.

All parts are accessible for repairs and adjustments and all bearings are easily renewable.

Belt pulleys are mounted on engine crankshaft, in full view of operator when lining up and backing into the belt.

Thus, in all respects, Case tractors meet the requirements of progressive farmers who want their work done on time, efficiently and economically. The full story of Case tractor advantages in timely work is told in our new booklet "Better Farming With Better Tractors" a copy of which will be sent for the asking. Write for it.

J. I. CASE THRESHING MACHINE COMPANY
(Established 1842)
Dept. A1 Racine Wisconsin

*NOTE: Our plows and harrows are NOT the Case plows and harrows made by the J. I. Case Plow Works Company.*



# STRAWBERRY PLANTS

TWO BEST EVERBEARERS, also the new COOPER, LARGEST, SWEETEST and most PRODUCTIVE strawberry known. ONE BERRY makes a BIG MOUTHFUL. 9 berries make a layer in a quart box. 400 crates per acre. Sells for ONE-THIRD more than other varieties on any market. Many other new and leading strawberries, all packed in wire-bound crates, insures safe arrival. BEST varieties of Grapes, Raspberries and other kinds. 31 years of experience in growing and packing plants. Our guarantee protects you and insures your satisfaction with

## WESTON'S TRUE-TO-NAME STOCK

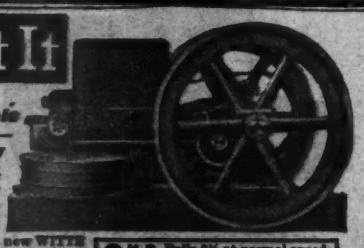
OUR PRICES have been GREATLY REDUCED. WHOLESALE PRICES quoted on large amounts. Our free catalog shows the COOPER and ten other kinds in their natural colors. Also much valuable information for the grower.

A. R. WESTON & CO., R. D. No. 1, BRIDGMAN, MICH.

Read About It

*New Kind of Power—Use Low Grade Fuels*

An engine a boy can understand—Fewer parts—New design—Every part simplified—Mechanically correct. Built of the very best materials. Power housed or detached at will. Positive exhaust. Automatic air valve. Starts without cranking. BOSCH Magneto or COLUMBIA Battery.



WITTE Brings Out NEW IMPROVED THROTTLING GOVERNOR ENGINE

*Years Ahead*—The new WITTE brings together a score of practical improvements that will stand for years to come—The engine every man will buy and use because of its simplicity and easier operation on either Kerosene, Gasoline, Distillate or Gas. In all sizes and styles, 1 to 8 H-P. — Stationary, Portable or Log Saw. Write for the Big New Catalog.

Big New Catalog FREE

2 H-P. Pulls 2½ at normal speed, or 3 H-P. at maximum.

$45.00 F. O. B. Kansas City, Columbia Battery. F.O.B. Pittsburgh $48.25 F.O.B. San Francisco $57.00

OTHER SIZES AND STYLES AT PROPORTIONATE PRICES.

WITTE ENGINE WORKS
2565 Oakland Ave., Kansas City, Mo. 2565 Empire Bldg., Pittsburgh, Pa.
292 Fremont Street, San Francisco, Cal.


# WITH THE CO-OPS.

RECENTLY representatives from the various local packing associations of the Hudson Valley, distributed over five of the fruit counties, signed incorporation papers for the formation of the Hudson Valley Fruit Growers' Co-operative Association, Inc., according to D. V. Rivenburgh, County Agent, Catskill, N. Y. The federating of these various locals into a central organization is epoch making in the development of the fruit industry of the Hudson Valley.

The central packing house movement in the Hudson River district has made rather a slow, conservative but healthy growth and the progress has been sound and on a basis which will probably prove permanent. The federation as it stands today consists of seven local associations from Albany, Greene, Ulster, Dutchess and Columbia Counties. In the past season the crop was rather light in this section and the output from these community plants was about 70,000 barrels. In an average season the pack would be at least 100,000 barrels of apples and pears.

This organization is patterned after that in western New York and many of the men who are responsible for the valley organization also saw service in the foundation of the western New York association. The officers of the Hudson Valley Fruit Growers' Co-operative Association, Inc. are: President, Clifford L. Miller of Claverack; Vice-President, Joseph Devo of Gardiner; Secretary, A. B. Buchholz of Hudson. The directors are: William Albright of Coxsackie; William Blenis of Ravena; C. C. Demond of Oister Park; Robert R. Livingston of Cheviot. These men have all been prominent fruit men in their respective sections. The headquarters will be in the Farm Bureau office at Hudson.

The various county Farm Bureau associations have been backing this movement from the start, a movement which has been demanded on the parts of both the consumer and the producer. The new association hopes to standardize the grade throughout the entire valley, putting up a uniform pack of quality.

---

CALIFORNIA Prune and Apricot Growers' Association have rendered their final statement on the 1921 crop of prunes. It shows that the Association received from its customers the sum slightly in excess of $13,682,000. From this was deducted some $2,275,000 to cover cost of packing, freight, insurance, strapping and duty, leaving gross sales for the growers a sum in excess of $11,407,000.

From these the local charges to be subtracted amounted to $1,282,000 to cover freight and hauling, grading, insurance, general crop expenses, sacking, sorting, advertising, brokerage and selling expenses, leaving a balance collected for the growers a sum equal to $9,664,000. 140,903,000 pounds of prunes were received and the sales amounted to 144,111,000 pounds, showing a gain of weight in the packing of 3,207,000 pounds.

The final prices received by the members of the Association for the "Sunsweet" brand, the best brand sold by the Association, is as follows:

| Size. | | | |
|---|---|---|---|
| 20- 31 | Incl | 19.833c | per lb. |
| 32- 41 | " | 8.255c | basis. |
| 42- 51 | " | 7.677c | " |
| 52- 61 | " | 6.153c | " |
| 62- 71 | " | 5.639c | " |
| 72- 80 | " | 5.553c | " |
| 81- 90 | " | 4.833c | " |
| 91-100 | " | 5.146c | " |
| 101-120 | " | 4.482c | per lb. |
| 121 up | | 2.855c | " |

It takes good management and high class salesmanship to sell 144,000,000 pounds of prunes and to return the growers the price realized this past season. It is only by the concentration of such a large tonnage that growers could hope to receive such fine returns. If the prunes were broken up and handled by many private handlers the growers would never realize such fine figures.

---

SATSUMA growers of western Florida have recently organized. At a recent meeting in Marianna the following temporary board of directors was named: J. D. Smith, Marianna; Jesse Miller, Graceville; W. W. Webster, Grand Ridge; L. A. Mobley, Cypress; S. A. Leonard, Blountstown; Mr. Leavins, Wawahitchka; Willis Carroll, Round Lake; W. L. Wilson, Panama City; G. E. Paton, Lynn Haven; C. H. Pope, West Bay; Joe Williams, Chipley; W. A. Sessoms, Bonifay.

Men nationally known in citrus production such as State Commissioner of Agriculture McRae; Dr. O. F. E. Winberg of Grand Bay, Ala., a leader in the satsuma field; F. M. O'Bryne of the state plant board; H. H. Hume; C. E. Stewart, business manager of the Florida Citrus Exchange; L. M. Rhodes of the state marketing bureau, and many others were present.

The following officers were elected: William L. Wilson, Panama City, President; J. D. Smith, Marianna, Vice-President, and William Sessoms, Bonifay, Secretary-Treasurer.

There has been a big development in the growing of the satsuma, or hardy Japanese orange in western Florida. The Seminole Plantation Company alone has set out 5000 acres of this type of orange.

---

J. A. Brogdon is the new sales and advertising manager of the Sun-Maid Raisin Growers' Association of California, who is succeeding F. Hugh Grady, resigned. Mr. Brogdon for fourteen years was with the Foster Advertising Company of Chicago. He has a very wide acquaintanceship, is a man of fine personality and keen business ability and is recognized nationally as a man of unusual ability along business organization lines. Mr. Brogdon has a host of friends in every corner of the United States who wish him well in his new adventure.

The Sun-Maid Raisin Growers have established a farm cost and accounting department, which will be directed by F. A. Stewart. The business of the Growers is increasing so rapidly that a new office building will be erected, 150x191 feet. Despite the fact that the export business with Europe and other countries has not been very good for most products, the Sun-Maid Raisin Growers in the past eight months of this year have exported four times last year's entire tonnage to Great Britain.

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APPLE and pear growers of southern California are not contented in seeing men like the orange and walnut growers organize and have formed a new cooperative organization of their own to be known as the Deciduous Fruit Distributors of Southern California.

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PEACH growers of the Yakima Valley in Washington have recently organized the Yakima Peach Growers, Inc., the incorporators being Bruce Wees, E. R. Ballard, H. H. Lombard, J. A. Bourgaize and F. E. Thompson. There is a large tonnage of good shipping peaches produced in the Yakima Valley. The new organization expects to handle the 1923 crop.

# Independence on Seven Acres

(Continued from page 10)

and cropped to a height of not more than 5 feet in order to produce larger fruit and encourage the growth of fruiting laterals. A horse-drawn cultivator is used to keep the ground well cultivated between the rows, for raspberries especially soon run out if grass is allowed a hold among the roots, but if properly tended the canes should last from 12 to 15 years.

**Thornless Blackberries Superior**

Over an acre of "Thornless" blackberries are grown as these are considered better than "Snyder" which are too seedy, or "Evergreens" which are too late. They do not fetch such big prices as raspberries, but as the crop is heavier and they are cheaper to pick, the net profit is about the same as for raspberries and logans.

There are about 1¼ acres of red and black currants, some of the bushes reaching over 9 feet in diameter and producing 25 lbs. of fruit. On the reds the fruit grows on the old wood, and on the blacks on the new wood, so they have to be pruned accordingly. These bring in a gross return of $700 —$800 per acre, but the cost of picking is much less than for other fruit.

Fifty "Boussock" pear trees are a good side line, they invariably yield a good crop and are a variety particularly free from disease.

This rancher is fortunate in having four sons and two daughters to help him, but now the farm is growing beyond the family he has to employ a little outside help as well.

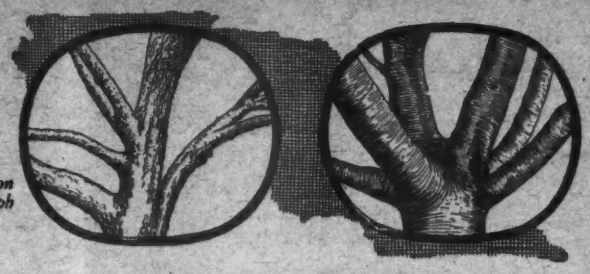
He is a great believer in independence, so he keeps pigs and cures his own hams and bacon; rabbits, which when canned, make a quick meal that needs no preparing in the busy days of the fruit season; and a cow, which provides them with all the milk and butter they can use, and cream enough to hurry the strawberries down.

Co-operation on a large scale, and cold storage facilities enable the fruit crop to be marketed all over the prairie provinces besides supplying the towns in British Columbia itself.

## Australian Fruits

AUSTRALIA completed a fairly satisfactory season in exporting apples to England and many favorable comments appeared in the English press. Among the popular varieties were the Cleopatra (known in America as the Ortley and sometimes called the New York Pippin), Jonathan and Cox Orange Pippin. The quality of the Australian apples was understood, on the whole, to be very good. A million and a half boxes, comprising about 27,000 tons, were sent over. The expense of handling was so great that nothing but the finest fruit was exported. Some varieties were sold as cheap as 12c a pound and others at from 16 to 18c, including such varieties as Cleopatra, Jonathan and Cox Orange Pippin. The retail distributors were paying 15 to 20 shillings per box for the fruit or 9 to 12c a pound. On the best Cox Orange Pippin the wholesale price was generally over 14c. The freight is estimated at about 6 shillings per box. Taking in handling charges it would be necessary to get at least 15 shillings per box in order for the growers to realize a profit. Unfortunately, however, the growers do not always realize 15 shillings. Concerns this past year in Australia, in exporting pears to England have found that the large box is unsuited for the purpose and that the trays similar to those used for exporting fruits from South Africa, which contain only one layer of fruit, are more suited to the handling of pears.


*January, 1923*



*Illustrating tree invigoration —drawn from photograph*

*This is the fifth of a series of advertisements on the making of better orchards. Reprints of the first four will be sent to you upon request. The sixth, discussing Aphis Control, will appear next month.*

# Invigorate Your Trees by Spraying

Tree invigoration has become one of the most important reasons for persistent year-after-year use of SCALECIDE as the dormant spray. This invigoration results in larger foliage, longer terminal growth and later falling of the leaves. And as a consequence of the larger leaves and the longer time in which they have to make starches and sugars, the sap is made richer. This in turn insures plumper fruit spurs the second year and a larger crop the third year.

As is obvious, the stimulating effect of SCALECIDE accumulates over a period of years. In no circumstance should the spray be omitted a single year, even though your orchards may be temporarily free from the diseases and insects which SCALECIDE controls. The Elsenburg Experiment Station, South Africa, reported 58% increase in yield of pear trees the third year, from the use of SCALECIDE, and continued the experiment to prove whether this *stimulation affected the vitality of the trees!* Tree invigoration is a "plus" value which you receive from the *regular* application of *"The Complete Dormant Spray."*

Let SCALECIDE be your dormant spray. Then you will know that you have done all that can be done *at that particular* time by any dormant spray or combination of sprays. Fall spraying with SCALECIDE controls pear psylla and peach leaf curl. Spring application controls aphis, pear thrips, leaf minor, case bearer and leaf roller. *Either* fall or spring spraying with SCALECIDE controls scale, bud moth, European red mite, fungus or blight cankers from which are spread fire blight, collar rot and root rot. And in addition to controlling these insects and diseases, year after year use of SCALECIDE invigorates the trees.

*WE GUARANTEE that, if you will divide an orchard, your worst or best, in two parts equal in general condition, and for three years spray one part with SCALECIDE according to our directions and the other part with lime-sulphur, giving the same summer treatment to both parts, the part sprayed with SCALECIDE will be better than the part sprayed with lime-sulphur—in the judgment of three disinterested fruit growers—or we will refund the money you have paid for the SCALECIDE.*

If your dealer doesn't carry SCALECIDE, show him this advertisement—or order direct from us. In any event, write today for the new booklet, "Why SCALECIDE". We will send you also "Spraying the Home Garden", which is considered one of the most helpful treatises extant on the control of insects and diseases that attack trees, shrubs, vines, flowers and vegetables. Address Dep't 11

B. G. PRATT CO. 50 Church Street NEW YORK CITY

SCALECIDE

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**NITRATE OF SODA**

*Large Stocks carried at all important fruit centers*

Indianapolis, Ind. Columbus, Ohio
Benton Harbor, Mich. Evansville, Ind.

Write for prices and literature

S. H. BURTON, Western Distributor
WASHINGTON, IND.

**New Bulletins for Farmers**

who are interested in maintaining or increasing the productiveness of their soils.

These bulletins will be written in plain, understandable language for farmers who grow

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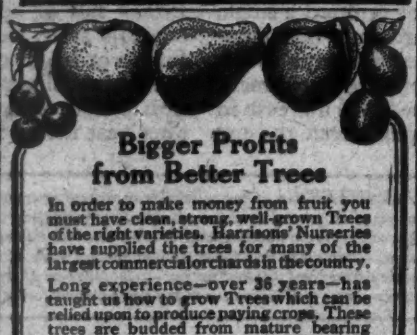

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To help you plan. That's the first office of this finely illustrated catalog. It makes the attainment of a beautiful and fruitful garden easy. Flower and vegetable seeds listed are from time-proved strains with many new varieties. Contains valuable information on planting; covers every need of the grower. For 69 years, S. & H. seeds, trees, plants and shrubs have been the choice of professional gardeners, orchardists and nurserymen. Our 1200 fertile acres afford infinite selection. Don't handicap your garden. Write to-day for this descriptive and helpful catalog.

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# Charles A. Green's Walks and Talks With Readers

## Orchards in Cultivation or in Sod

Do you favor orchards in sod or in cultivated land?—Planter.

THERE are soils that are so loose and porous they will produce fine fruit and plenty of it when growing in sod. We have many examples of this where fruit trees are planted in the borders of the lawn on the home grounds. There are other soils more tenacious and clayey that harden after rain and these soils require cultivation in order to get good results.

I know of a successful orchardist who gives but little cultivation and who succeeds in growing beautiful specimens of apples and yet does not expend much labor in producing his fruits. His method is to allow the weeds and grass to grow up in the early growing season, turning them under with the plow in July or August. The weeds and grass add to the humus in the soil and prevent drying out of the soil.

## Cultivation for Pear Trees

My pear trees are somewhat affected with pear blight. What has been your experience?—Orchardist.

I OFTEN allude to David Bell, one of the most successful pear growers in New York state. What he does not know about pears is hardly worth knowing, one might think.

His main orchard is kept cultivated from early spring up to about August first. This orchard is exceedingly prolific of superior fruit.

Not far distant Mr. Bell has an orchard of standard pear trees that has not been plowed in many years. Grass grows luxuriantly in this orchard and yet the fruit is nearly as large and beautiful as it is on the cultivated orchard. When I ask Mr. Bell which method he likes better, the cultivation of the orchard or the non-cultivation, his answer is that much depends upon what is done with the orchard in grass. Mr. Bell applies fertilizers more largely to the orchard in grass than to the orchard that is cultivated. My experience is that pears or any other fruit will be larger when grown upon cultivated soil than upon trees standing in grass. There is a suspicion among pear growers that pear trees growing in cultivated soil are more apt to suffer from pear blight than those grown in grass. The theory is that those trees that are cultivated make more rapid and succulent growth and therefore are easier prey to the dreaded blight. By the way, I will say that at Green's Fruit Farm we have been growing pears for the past forty years and have never suffered seriously from pear blight.

## The Truck on the Farm

I REMEMBER just how I felt when I bought the first truck for the farm. I felt that it was an extravagance, but I soon found that it was one of the best investments I ever made. The truck enables the man who drives it to do three or four times as much as he could have done with an ordinary farm team and wagon. If you should take away our farm truck now we would feel as though we could hardly conduct business without it. With the truck distance is not of much account. With the truck you have lessened the distance by more than half from your farm to the railroad or to the neighboring village or city.

What would you give to have your farm shifted from twelve miles to six miles? Well this is just what you are doing when you buy a truck.

## Low-Headed Fruit Trees

I AM asked to explain what I mean by low headed fruit trees. In reply will say that I consider any fruit tree whose limbs are so low an average man cannot pass under them without striking his head. Such a tree when filled with fruit will at the ends of the branches be only four or five feet from the ground. In old times you could hardly find a tree trained as low as I have indicated. The idea was to cut off all the lower limbs and leave simply the top to bear fruit. This made it difficult to pick the fruit or to prune the tree and fruit that might fall would be seriously bruised. I would not expect as fine specimens of fruit from high branches as I would on a moderate height tree or what I might call low headed.

The man who first thought of training his trees with low heads certainly had a happy thought. It is strange that low headed trees should not have been planned for throughout the past forty years. I have trees on my experimental grounds that when weighted with fruit permit the branches to rest upon the ground. Such trees are trained too low.

## Nothing But Bark

I have not seen anything from your pen on the bark of trees. Will you kindly write something on this subject?—Edward C.

THE time will come when the waste products of the forest will be more highly valued. At present but little use is made of forest leaves. They could be made more useful as a fertilizer. They are valuable as a protection against frost. Frost penetrates leaves more slowly than many other items.

The bark of trees is by most people considered waste. In old times much use was made of oak bark as a tanning material for tanning leather. I assume that it is still used for that purpose.

If you examine the bark of trees critically you will find that it is a remarkable substance, varying in many respects in different varieties of trees. For instance, the basswood is soaked in water for months until ribbonlike strings can be removed in large quantity to be used for various purposes, mainly for wrapping the buds of trees after they are inserted by the nurserymen. Bark is an armor. It will shield the trees from severe blows.

You can distinguish the varieties, if you are a woodsman, by the bark of the tree. See how the bark of the beech tree, so smooth and free from corrugations, differs from the bark of the oak, the maple or the hickory. There is one kind of hickory that attracts attention by its long slivery outer bark, which gives the name of the shagbark hickory. The bark looks as though it were going to drop off, whereas there is no danger of such calamity.

The bark of the tree must expand to make room for the annual growth of the tree which it encompasses.

The bark of trees varies greatly in thickness, thus the bark of the sequoia, largest of all trees, is nearly a foot thick, as near as I can remember.

The bark of the cork oak tree is of great value to humanity. What would we do without a cheap corky substance? Rubber corks are perhaps better but far more expensive. Cork being so light is particularly valuable for lifeboats and in the manufacture of linoleum. The bark of trees has long been used for medicinal purposes, most largely in the preparation of quinine.

# The Orchard Home

## A Section for All Members of the Family

Edited By MARY LEE ADAMS

### The Serious Side of Life

A LITTLE girl sat carefully holding up the corners of her apron as if awaiting gifts of great worth. On his knees before her, a small boy was vastly busy scooping up the gravel with his short fingers. He was packing this into his diminutive slippers—full measure, heaped up and running over.

He emptied these, to the very last pebble, into the little girl's apron. She received the contribution as gravely as it was given and offered no remonstrance when the digger fell once more to his self-appointed task. The pebbles fairly flew. This thing was important. As much gravel as possible must be accumulated and treasured.

Was it age-old instinct at work? Here sat the fair one, and he, the strong male, would pour riches into her lap. He put his whole heart into it. She cherished the fruit of his labor in her little apron and one felt she would defend it at all costs. And then came one of the tragedies of childhood. The voice of one "who never could know and never would understand." It said, "Put on your shoes at once and never let me see you pouring dirt into them again."

### Good Roads and Education

SOME years ago I jolted over a rutted road as far as the flivver could take me before stalling in a mud hole. I scarcely needed the warning of—"worse ahead"—to induce me to turn back, for many miles of the country had been depressingly vacant looking. The few homes beside the road looked neither prosperous nor pleasant and though it was late spring the children were not in school.

That was hardly their fault for there was no school to go to within convenient distance. I felt sorry for them and brooded a bit over their disadvantages as I bumped along. Then I struck back into the highway and forgot the byway in the happy sights and sounds of thriving farm communities.

This year again I found myself in the neighborhood of that unforgotten mudhole, but I could not recognize the spot. The summer after I had stuck there, a good road had been run past those lonely houses. Followed a schoolhouse worthy of the children who will one day take our places in the affairs of this country. A shabby little meeting house had been transformed into an inviting church. Trucks had, on several farms, taken the place of the old ox carts which had formerly hauled the crops. Everybody and every thing looked better, and I'm very sure they felt better.

### Woman's College Red Rag To See

WIDE publicity was given to the letter written by a Mr. See, of elevator fame, in response to the request for a contribution to a woman's college. In his letter of refusal, Mr. See took the opportunity to air his views upon all such institutions. He would have every one of them burned to the ground and the students put to hard manual labor for a year in an effort to knock into their heads some sense and to knock out of their systems much objectionable foolishness.

The more literary element of the country rallied handsomely to the cause of the girls and their colleges. We could almost find it in our hearts to feel sorry for the offender, so scornfully was he rebuked.

That A. B. See knows his alphabet, sounds like a foregone conclusion, and that he knows some other useful things is indicated by his rise to the top of the elevator world. We should at all times be pleased to listen to his views on this subject even though it is not exactly overflowing with human interest. But when it comes to criticising women's colleges, we are reminded of the plight of a shoemaker who plied his trade in ancient days.

As the classical legend runs, a great artist, having painted a great picture, placed it on exhibition in view of the passing public. It won unstinted praise save from a shoemaker who pointed out a defect in the drawing of the foot.

Artists in those days must have had less temperament than now, for the painter took the criticism in good part and made the suggested alteration. Followed a not unnatural case of swell-head on the part of the shoemaker, who forthwith set up as an art critic and proceeded to find another fault with the masterpiece. But this drew from the artist nothing but the biting retort, "Let not the shoemaker go above the ankle." In other words, "Don't talk about what you don't understand."

### Airplanes Protect Forests

THE use of airplanes in forest fire protection, has a quality of romance, a picturesque appeal, that almost diverts one from consideration of its useful possibilities. Yet it is easy to see how admirably this branch of the service supplements, while it does not replace, the ground service.

The observer in an airplane can readily pick up from above, a thread of smoke invisible to the lookout on the ground. One specialty of the aviators is to soar over areas recently visited by thunder storms and thus locate any lightning-set fire before it can burst into conspicuous view. Where large fires are burning in rough and difficult locations, the plane offers to the skilled firefighter an invaluable gain in time, as he circles the area and is able to judge at a glance how best his men may be disposed to make the most efficient fight.

Prompt communication is essential to success, and all planes are equipped with radio transmitting sets, while each ground station or sub-station maintains a radio receiving station. At intervals of 15 to 20 minutes the observer reports regularly to the nearest ground station. If he himself is not qualified as an operator, the pilot can always transmit the message.

In 1921 the airplane patrol covered almost the entire forested area of California. Doubtless its activities will be both intensified and extended in the near future. Up to the present the planes pass over a given spot too infrequently. It is recommended that at least two flights daily should be made over the same route. Circle patrols, of not to exceed two hours, would be considered a thoroughly efficient protection.

### Advertising by Censorship

RECENTLY a French author enjoyed an unexampled sale of his works following upon a papal ban against them. People who had never thought of reading his books, flocked to buy them. The incident may well be remembered before we adopt the proposal to create a "Censor of Literature" as is suggested by the New York Society for the Suppression of Vice.

Most decent-minded people regret that objectionable books should be either written or printed, but they know the danger of too much zeal. Lots of us will stand on tip-toe to look over a wall at something that we would not turn our heads to see on the open street.

SPEAKING of pigs, a professor of agricultural engineering says, "We have found that pleasant surroundings are best. Sunshine is the most essential factor, and pens built in pretty style make it additionally pleasant for the animals. Gothic style is advocated because the sloping roof allows the sun to drift in." Then, too, Gothic is good for acoustics, and, if the pigs wish to give a concert, the pitch of the roof might favorably affect the pitch of the squeal.

### Three Good Wishes

WHAT wishes can we offer our Orchard Women at the opening of the New Year? Wealth? That's good. Health? That's better, for without health, wealth cannot bring happiness. Ah! Happiness. Now we've struck the best wish of all, for it includes all good things that are essential to our contentment and prosperity. So here's to your health, wealth and happiness, but the greatest of these is happiness.

### A Poem of Childhood

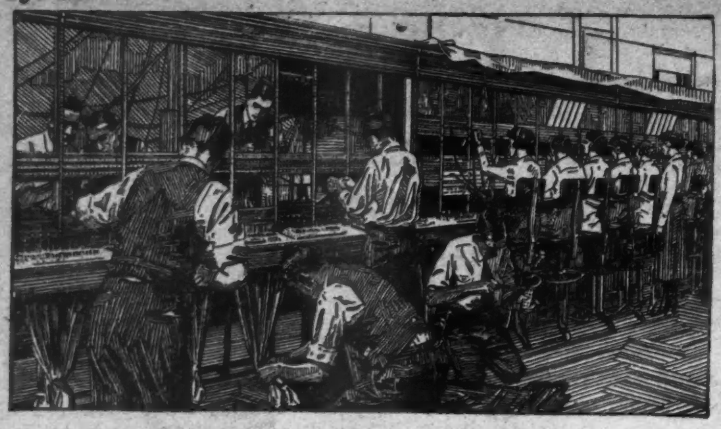
HERE is a poem which might touch the heart even if we did not know that the author is a litle girl of ten years. After reading it, we think she must be a very sweet and interesting, as well as a very unusual child.

#### I WAS THINKING

*By Hilda Conkling*

I was thinking
The tenderness children need
Is in soft shadow things;
Is a kind of magic . . .
Petals of a dark pansy . . .
Cloudy wings . . .
(But the sun can touch me
With finger tips like flowers.)

And the tenderness children need
Is in old thoughts and songs of all the world
People have not forgotten.
It is in the way mothers look at tired children.
It is in the half-voice fathers use,
Feeling some surprise and gladness
To see their children there at all.



# Expansion

A million new subscribers were linked to the Bell System during the past two years—putting into operation a million new routes of talk, and a corresponding increase in all intervening facilities such as switchboards, cable and long distance lines.

No other country is so well equipped as the United States for telephone communication. Yet, because of this—because the telephone is so useful—the demand for service keeps growing greater.

The growth of telephone demand in the United States is greater than the growth of population. It is an intensive growth. An increasing percentage of the population is seeking telephone service.

The Bell System is providing for more investment, further technical achievement, more wires, switchboards and stations—and more subscribers. The American people require the best service. The best service means the most comprehensive service, not only for the necessities of to-day, but for the necessities of the future.

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# Chats with Fruit Grower's Wife

By Hazel Bursell

## What to Eat for Vitamines

"WHAT should I know about these vitamines I hear so much about?" Mrs. Average Housewife has been asking herself many times these last few months.

The answer to her question is simple—Know the effect the lack of them has; know what foods are high in the different ones; and know how to prepare the foods so as to keep the vitamine content high.

There are three vitamines, known by their effects rather than by sight. The first is called "Fat Soluble A" and is necessary for growth in the young, and to maintain health in the adult. Experiments on animals and man have conclusively shown that when this principle is lacking in the diet of the young growth ceases. Certain eye troubles and Rickets are also thought to be caused by the lack of "A" vitamine.

### Yellow Fats Contain "A"

The inclusion of animal fats, especially the yellow colored ones, such as cream, butter, beef suet, fish oils egg yolk, together with green leafy vegetables, as spinach and tomatoes, and colored root vegetables such as carrots, yellow corn, and sweet potatoes, assures the family of sufficient quantities of Fat soluble A in their diet.

The second vitamine, Water Soluble B, is found in nearly all natural foodstuffs to some extent. Whole-grain cereals, yeast, and nearly all fruits and vegetables contain "B". Lemons, oranges, prunes and tomatoes are all quite rich in this vitamine.

The "B" vitamine is a preventative of Beri Beri and other serious nervous diseases.

### "C" Prevents Scurvy

Some scientists believe that the third vitamine, or Water Soluble C, is the most important of all yet discovered. It is a direct preventative of scurvy, as has been conclusively proven. The richest sources of this vitamine are fresh vegetables and fruits such as oranges, tomatoes, lemons, cabbage, swedes, turnips and lettuce. Meat and milk each contain small amounts.

Water soluble C is the most easily destroyed by heat, being killed in most cooking, canning and drying processes. Therefore to have "C" in the diet it is necessary to serve some raw foods.

Both the other vitamines are quite stable to ordinary cooking temperatures. Neither is harmed in the processes of drying or home canning, though "B" may be somewhat affected in the commercial canning process.

### Mixed Diet Advisable

"If you have in your diet some leafy vegetables, fruit, cereal, or cereal products, meat or a meat substitute, and include at least one uncooked fruit or vegetable daily, you need never suffer from malnutrition in any form," say the specialists who have made thorough studies of the subject in all its phases.

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## An Inexpensive Dress Form

ONE of the greatest aids to the home dressmaker is a good dress form on which to do necessary fitting and draping—one that is really a perfect likeness of the owner. It will soon be springtime again, and that means to a woman one thing mostly—new clothes for herself and family.

A dress form can easily be built at home for the small sum of $2.75 for materials, while the commercial price is from $7 to $25. Why not build one now, and then have it ready for the spring and summer sewing?

The materials needed are 2 rolls of gummed paper, about 1½ to 2 inches wide; such as is used to seal packages and may be purchased at any stationery store; a close-fitting lining or a knitted vest, and a standard for the completed dress form.

### Standard Easily Made

The men folks can easily make a standard by using a smooth round upright stick about the height of the model, which has a series of horizontal holes bored for a space near the center to permit the raising and lowering of the form. The upright should be planted securely in some sort of a floor-piece large enough to prevent tipping, but still not too heavy for lifting.

An oval-shaped board about the size of the form at the hipline, with a hole in the center for slipping over the upright stick, and a small round peg to fit in the upright's holes under the oval board to hold it at the desired height, complete the standard. When the seamstress wishes to raise or lower the form, she merely moves the projecting peg up or down a notch.

Next cut the gummed paper into strips, keeping the various lengths in separate groups. Cut 100 strips 14 inches long, 90 strips 9 inches long, 75 strips 12 inches long, 50 strips 11 inches long, and 250 strips 3 inches long.

The vest or close-fitting lining is put on the person for whom the form is to be made and the strips of paper are pasted on the lining by another workman. If a vest is used the sleeves should be cut off above the elbow, and a fitted standing collar added.

### Make Paper "Belt"

The pasting is begun by wrapping one piece (preferably 2 inches wide) around the normal waist line twice. A piece is put up the center front and the center back from the neck to the hip line. Then four braces are pasted diagonally from the shoulders to the waist line in the front and back.

The form is now ready to be completely covered with the strips, which should overlap and run vertically from the neck to the hip line.

The 9-inch strips are pasted diagonally, crossing under the arm. The 12-inch strips are pasted diagonally across the chest over the vertical strip already put on. The 11-inch ones go diagonally across the vertical ones from the waist line to the hip-line (below the waist). Then completely fill in the spaces until covered with the short strips, laying them as orderly as possible.

When finished, split down the back, and remove from the model. Stick the cut edges together with strips of the gummed paper pasted across the cut on the inside of the form. Then the form may be placed on the standard and is ready for use.

With the aid of such a dress form, made with little work and expense, the mother in the home can easily "fit" her own clothes. Then too she can try out paper patterns on the form and ascertain just how the garment will look on her, even before she cuts into the goods.

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## Factors in Good Digestion

DO you want a good healthy digestion?

But of course you do—everyone does! No one can be really happy or carry on life's work with the greatest possible effciency unless h's or her "tummy" takes care of its part of the business with ease and without bothering the owner.

Then the first thing to do is to find out what things make for a good digestion, and knowing that bring the whole body up to standard—and then live so as to keep it there.

### Need Healthy Body

To begin with a good healthy body is the necessary foundation for good digestion, the latter going hand in

and with the former in most cases. How many people with sick run-down bodies, have good digestion—can you think of any? Strive to remedy other ills along with stomach troubles.

Plenty of fresh air is another big essential. A dull tired feeling is usually a direct result of bad air. Never, under any circumstances sleep with the windows closed at night—put on plenty of covers for warmth.

Wholesome exercise without overworking or playing makes for a good appetite, and normal people should be really hungry at meal times. Digestive juices are not being secreted properly when the person lacks appetite—and unless they do flow and mix with the foods, the latter will not digest completely and properly.

### Eat Plain Foods

Good plain wholesome foods, in sufficient variety, and well-prepared and served should be eaten. Eating too much is a guaranteed method of acquiring a poor digestion. The subject of foods is a topic by itself, however.

Another 'sure-fire' method of getting indigestion is to eat between meals—the same old story which has been told a thousand times. The stomach can't go on forever working twenty-four hours in a day. It finally gets worn out and "strikes." And then only for decent treatment.

All food should be masticated thoroughly. The saliva in the mouth really begins digestion on certain kinds of foods, and it is therefore necessary to chew the food long enough to mix it with the saliva. Too much fatty, concentrated, or irritating foods should be avoided. Candy and sugars, highly seasoned sauces, and foods with a high acid content (as vinegars) come under the irritating class. Cheese and sugar are two concentrated foods

### Pays to Be Cheerful

Cheerful people have much better digestions than do the long-faced, down-in-the-mouth types. A spirit of happiness should prevail at the dinner table—make it a point to see that the family has some good laughs, and keep away from depressing subjects. But the person who looks for the bright side of things all of the time is the one who will get the most out of his food as well as the most out of everything.

Food should never be taken into the stomach when nervous or "Peeved," as the juices do not flow properly, and the organs are not stimulated to the usual state of action.

To summarize—Have some interesting work and work hard at it, play some, look at the bright side of things, eat the foods that your common sense tells you are all right and in reasonable amounts—and your digestion will take care of itself.

## Choice Fruit Salads

AFTER talking about salads, the editor decided she might help the good cause along by giving some tried and trusted recipes for fruit salads, thereby making it easier for the busy housewife to try out some salads. Knowing that wives of American Fruit Grower readers would have many kinds of fruits at hand, the recipes for fruit salads were chosen from among the hundreds of others.

### Pineapple and Pimento Salad

On a heart-leaf of lettuce lay a round slice of canned pineapple. With scissors cut strips of rosy canned pimento about an eighth of an inch wide and long enough to reach from the center hole to the rim of the slice. Dispose these like the rim of a wheel. Fill the center with cottage or cream cheese reddened with finely chipped pimento, and press half a walnut into the cheese. Mask one side of the fruit with a spoonful of mayonnaise, leaving the gay color showing on the other side.

### Apple and Celery Salad

½ cup celery
½ cup apples
1 teaspoon lemon juice

Wash and scrape celery. Cut into ½ lengths. Pare and cut apples into ½ inch cubes. Add lemon juice to apples and mix lightly with the celery. When ready to serve, arrange on clean lettuce leaf and add spoonful of salad dressing.

### Banana and Fruit Salad

Cut bananas in quarters crosswise; roll in mayonnaise or creamy salad dressing, sprinkle with chopped nuts and serve on lettuce leaf.

### Creamy Dressing

(Goes with above recipe.)

1 teaspoons mustard
1 teaspoons salt
1 teaspoons sugar
1 teaspoons flour
¼ cup full cream
speck cayenne
⅔ cup vinegar
2 eggs yolks or one whole egg
2 teaspoons butter

Mix dry ingredients in top of double boiler, add enough vinegar to make stiff batter and beat smooth. Then add the remainder of the vinegar and slightly beaten yolks. Cook over hot fire, stirring constantly until thick and smooth, add butter and cool. When cold add sweet or sour cream well beaten.

### Cherry Salad

Remove stones from white cherries and stuff with nuts. Place cherries in a circle, pile chopped nuts and place dressing on top.

### Prune Celery Salad

1 tablespoon gelatin
2 tablespoons cold water
¼ cup boiling water on gelatin
2 tablespoons lemon juice or more
½ cup chopped nuts
½ cup chopped celery
½ cup chopped parsley
½ cup chopped sour pickles
2 pimentoes cut finely
1 cup prunes cooked and cut finely
¾ teaspoon salt

### White and Green Salad

1 cup shredded cabbage
1 cup diced celery
1 cup diced apples
½ cup chopped nuts
½ cup peas

1 tablespoon gelatine, soaked in 2 tablespoons cold water and dissolved in 1 cup white stock or hot water seasoned with lemons, salt and white pepper.

Pour gelatine over other ingredients. Serve on lettuce leaves with mayonnaise. May garnish with green olives

### Fruit Salad

Equal parts grapes, pineapple, celery, apples, and nuts diced and mixed with lemon juice. Dates may also be added and any of the other fruits omitted. A tablespoon of whipped cream to each serving may be used.

### Date and Apple Salad

Pour boiling water over a pound of dates; then separate the dates with a fork and lift to a granite pie-tin. Set the dates into the oven to dry the outside, turning meanwhile if necessary. When cold cut each date into 4 or 5 lengthwise strips. Pare, quarter and core apples to equal the bulk of the dates. Cut the apples into small lengthwise pieces. Squeeze lemon juice over them. Mix with pieces of dates, sprinkle with a teaspoon of salt and ¼ teaspoon ginger or paprika. Mix again then add 4 or 5 tablespoons salad oil, and mix again. Serve on lettuce leaves.

### Cheese Apple Salad

Pare apples cut into balls with a vegetable cutter or into one inch cubes. Make twenty-four. Cream cheese adding one teaspoon each Worcestershire sauce, and salt and one tablespoon chopped canned pimento. Shape into 12 balls the same size as the apple balls. Arrange on lettuce and serve with French dressing. The apple should be marinated with French dressing and let stand until chilled.

Other suggested combinations

Banana, nuts (Cut fine)
Orange, dates, walnuts
Peach (Cut in half) with raspberry in center
Pickled peach and nuts
Pear (½ slice) and riced cheese
Waldorf Salad—1 cup celery, 1 cup apples ½ cup nut meats. (Dressing for each salad)


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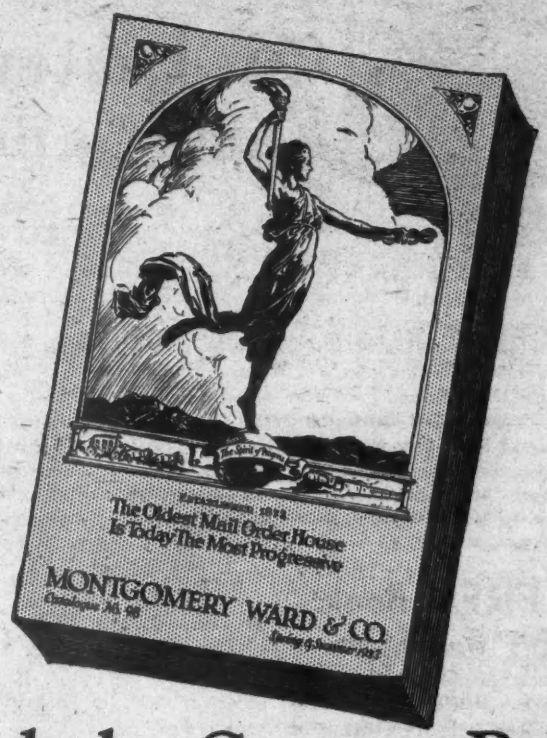


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## A Japanese Prince

(*Continued from page 4*)

be harvested at one picking. Or, the period of marketing may be extended over two months or more if desired.

Growing of the Satsuma orange in Mobile county has been established as a commercial industry. Its possibilities and limitations are known through experiment, failure, difficulties overcome by science, marketing problems encountered and solved and with the aid of wise laws fearlessly administered for the protection of the orchards and those who buy nursery stock.

Pioneers of the industry have demonstrated that it can be made profitable and, more than this, that the life of the Mobile county citrus grower and his family is a happy one, in a climate that is not equaled, month in and month out, and from year to year, in any other part of the world.

It is no tropical paradise or workless Eden that is here pictured, where one may plant dollars and idly watch them grow into thousands. The Satsuma industry in Mobile county offers a pleasant field for labor, and plenty of it, with reasonable expectation of ample returns upon the money, thought and work intelligently expended upon it. Those seeking more than this are pursuing the rainbow's end. Those who dream in terms of unearned riches or wealth acquired without the investment of the three essentials, money, thought and labor, should fare further, for such dreams do not more often come true here than elsewhere in this work-blessed world.

## Rambles of a Horticulturist

(*Continued from page 9*)

types of diseases for which there is no remedy and to practice a winter clean-up spray of lime sulphur for some other diseases. Much interest was shown in the reports of the various county agents on the remarkable results being secured by the use of nitrate of soda, sulphate ammonia and similar nitrates in increasing the yield of fruits of all kinds. The program closed by a very instructive talk by T. A. Farrand of the Extension Service at the College and a talk on the marketing through the Farm Bureau Produce Exchange of Detroit by F. A. L. Bloom.

### Indiana Horticultural Society

The Fruit Growers Short Course and the Indiana Horticultural Society held a joint meeting December 11th to 15th at Lafayette. Much interest was shown in subjects like spraying, thinning, pruning and packing, as handled by the various experts of the University. San Jose scale is bad in the middle west and J. J. Davis' address held the attention of the audience. Prof. Gardner is doing some unusually fine work in the control of apple blotch and a bulletin will be issued later for the general press on this subject. Marketing came in for considerable attention, cooperative marketing of perishables being handled by N. R. Peet, Manager of the Western New York Cooperative Assn., who also gave a second address on the work of the Federated. C. I. Lewis gave an address on advertising as a factor in fruit marketing and S. W. Fletcher, Head of the Department of Horticulture at Pennsylvania State College, discussed direct marketing of fruits for the fruit grower. Dr. Fletcher also gave an address on nursery stock and C. I. Lewis an address on the development and trend of horticulture in this country. The subject of apple storage houses was handled by W. G. Kaiser and aroused a great deal of interest.

Much fun was the rule at the horticultural banquet, which was held on the evening of the 5th. These society banquets are good things and should be held whenever it is possible to do so. There is nothing that will beat the annual banquet to breed up good fellowship and to send the various members home with a very kindly feeling towards the society and towards each other.


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## Methods of Fertilizing

(*Continued from page 5*)

is a particularly early bearer, and often makes a crop the third year. Even with such early productivity however, the tree will remain more important than the bearing of fruit, for a year or two longer, since tree-making is indispensable to future fruit making.

### Ingredients in Change

With bearing oranges, as with any plant, the composition of the crop produced, must be the basis of rational food supply. This material is actually removed from the soil, therefore the quantity of the crop, or fruit to be provided for, is the starting point for the rational fertilizing of the grove. The average amounts of the three essential plant foods, shown by analysis to be present in the fruit, becomes the practical basis for the economical and satisfactory fertilizing of bearing orange trees.

Fertilizing Ingredients in Oranges

| 20,000 lbs. | 300 boxes |
|---|---|
| Phosphoric Acid ----0.06 per cent | 12 lbs. |
| Nitrogen ----------0.14 per cent | 28 lbs. |
| Potash ----------0.25 per cent | 50 lbs. |

Adopting 20,000 lbs. of fruit, equivalent to 300 boxes, as a convenient crop basis, the above amounts of each of the three actual plant food requirements would supply the demands of the crop for material for its growth. It must be remembered, however, that this material only represents the fruit, and provides no supply for the needs of the tree. The actual demands of the grove producing 300 boxes of oranges would be more nearly represented by combining the plant food requirements already specified for the growing tree with the material now shown as necessary for producing the fruit that tree is to bear.

Experience, however, has shown that economical prove fertilizing necessitates certain modifications of this theoretical basis. Less nitrogen and more phosphoric acid than indicated by the more composition of the tree and its fruit, are found to best meet the continued welfare of the grove. Nitrogen is partly provided through the action of nitrifying bacteria on the nitrogen of the air, particularly when the intervention of a leguminous cover crop is secured. Phosphoric acid may profitably be used in some excess of the actual demands of the crop, because it is to an extent subject to leeching, and moreover, assists in liberating otherwise unavailable plant food of the soil. The application of potash in close conformity to the demands of the crop, as shown by analysis is found to best meet the requirements of the grove.

A fertilizer which shall supply 100 trees with 72 lbs. of phosphoric acid, 40 lbs. of nitrogen and 122 lbs. of actual potash will meet the plant food requirements of the average 300 box grove. This. therefore may advantageously be adopted as the basis, or normal application for the rational fertilizing of the bearing grove. It will be noticed that the relation between these three different plant food constituents in the normal fertilizer is approximately as follows:

Nitrogen 1, Phosphoric acid 2 and Potash 3. These proportions should be approximately preserved in the composition of fertilizers on this basis. Taking nitrogen, the smallest constituent in quantity required, represented by 1, the application of phosphoric acid should be about 2 times as much and the potash about 3 times as much as the amount of nitrogen applied. The percentage composition of a mixed fertilizer containing these quantities should be about as follows:

| | |
|---|---|
| Phosphoric acid (available) 7 | per cent. |
| Nitrogen ----------3.5 | per cent. |
| Potash ----------12 | per cent. |


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## A Japanese Prince

(Continued from page 4)

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## Rambles of a Horticulturist

(Continued from page 9)

tynes of diseases for which there is no remedy and to practice a winter clean-up spray of lime sulphur for some other diseases. Much interest was shown in the reports of the various county agents on the remarkable results being secured by the use of nitrate of soda, sulphate ammonia and similar nitrates in increasing the yield of fruits of all kinds. The program closed by a very instructive talk by T. A. Farrand of the Extension Service at the College and a talk on the marketing through the Farm Bureau Produce Exchange of Detroit by F. A. L. Bloom.

### Indiana Horticultural Society

The Fruit Growers Short Course and the Indiana Horticultural Society held a joint meeting December 11th to 15th at Lafayette. Much interest was shown in subjects like spraying, thinning, pruning and packing, as handled by the various experts of the University. San Jose scale is bad in the middle west and J. J. Davis' address held the attention of the audience. Prof. Gardner is doing some unusually fine work in the control of apple blotch and a bulletin will be issued later for the general press on this subject. Marketing came in for considerable attention, cooperative marketing of perishables being handled by N. R. Peet, Manager of the Western New York Cooperative Assn., who also gave a second address on the work of the Federated. C. I. Lewis gave an address on advertising as a factor in fruit marketing and S. W. Fletcher, Head of the Department of Horticulture at Pennsylvania State College, discussed direct marketing of fruits for the fruit grower. Dr. Fletcher also gave an address on nursery stock and C. I. Lewis an address on the development and trend of horticulture in this country. The subject of apple storage houses was handled by W. G. Kaiser and aroused a great deal of interest.

Much fun was the rule at the horticultural banquet, which was held on the evening of the 5th. These society banquets are good things and should be held whenever it is possible to do so. There is nothing that will beat the annual banquet to breed up good fellowship and to send the various members home with a very kindly feeling towards the society and towards each other.

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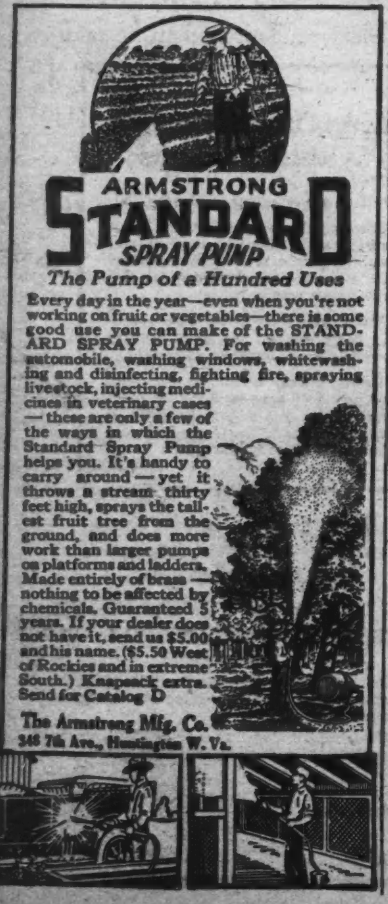
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## Methods of Fertilizing

(Continued from page 5)

is a particularly early bearer, and often makes a crop the third year. Even with such early productivity however, the tree will remain more important than the bearing of fruit, for a year or two longer, since tree-making is indispensable to future fruit making.

### Ingredients in Change

With bearing oranges, as with any plant, the composition of the crop produced, must be the basis of rational food supply. This material is actually removed from the soil, therefore the quantity of the crop, or fruit to be provided for, is the starting point for the rational fertilizing of the grove. The average amounts of the three essential plant foods, shown by analysis to be present in the fruit, becomes the practical basis for the economical and satisfactory fertilizing of bearing orange trees.

Fertilizing Ingredients in Oranges

| 20,000 lbs. | 300 boxes |
|---|---|
| Phosphoric Acid | 0.06 per cent 12 lbs. |
| Nitrogen | 0.14 per cent 28 lbs. |
| Potash | 0.25 per cent 50 lbs. |

Adopting 20,000 lbs. of fruit, equivalent to 300 boxes, as a convenient crop basis, the above amounts of each of the three actual plant food requirements would supply the demands of the crop for material for its growth. It must be remembered, however, that this material only represents the fruit, and provides no supply for the needs of the tree. The actual demands of the grove producing 300 boxes of oranges would be more nearly represented by combining the plant food requirements already specified for the growing tree with the material now shown as necessary for producing the fruit that tree is to bear.

Experience, however, has shown that economical grove fertilizing necessitates certain modifications of this theoretical basis. Less nitrogen and more phosphoric acid than indicated by the more composition of the tree and its fruit, are found to best meet the continued welfare of the grove. Nitrogen is partly provided through the action of nitrifying bacteria on the nitrogen of the air, particularly when the intervention of a leguminous cover crop is secured. Phosphoric acid may profitably be used in some excess of the actual demands of the crop, because it is to an extent subject to leeching, and moreover, assists in liberating otherwise unavailable plant food of the soil. The application of potash in close conformity to the demands of the crop, as shown by analysis is found to best meet the requirements of the grove.

A fertilizer which shall supply 100 trees with 72 lbs. of phosphoric acid, 40 lbs. of nitrogen and 122 lbs. of actual potash will meet the plant food requirements of the average 300 box grove. This therefore may advantageously be adopted as the basis, or normal application for the rational fertilizing of the bearing grove. It will be noticed that the relation between these three different plant food constituents in the normal fertilizer is approximately as follows:

Nitrogen 1, Phosphoric acid 2 and Potash 3. These proportions should be approximately preserved in the composition of fertilizers on this basis. Taking nitrogen, the smallest constituent in quantity required, represented by 1, the application of phosphoric acid should be about 2 times as much and the potash about 3 times as much as the amount of nitrogen applied. The percentage composition of a mixed fertilizer containing these quantities should be about as follows:

| | |
|---|---|
| Phosphoric acid (available) | 7 per cent. |
| Nitrogen | 3.5 per cent. |
| Potash | 12 per cent. |


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# Study Hour in 1923

(*Continued from page 18*)

teachers' capacity cannot be uniformly high. Some noble examples do exist of devoted and splendidly capable rural teachers, but it is inevitable that, as a result of so poorly paid a job, brain workers of a high order will not be attracted to it permanently.

The plea for higher salaries is sometimes met by the statement that such and such individuals are getting all they are worth. I cannot imagine a more short-sighted policy than keeping our rural teachers on inadequate pay. Raise the salary, and you raise the general standard of efficiency. Keep it down, and the more capable will certainly go into better paid work.

### When Help is Advisable

Things being as they are, parents may well believe that they have something to offer the child in pursuit of knowledge, which the teacher is not unapt to lack. Text books too, are often mere skeletons of facts, and the well-informed parent can turn these dry bones into living realities.

Can't you recall how everlastingly bored you were with that history lesson which was so hard because it merely recorded a long list of unrelated events, each with its own maddeningly elusive date? Did anyone then take the trouble to tell you what led up to these events? How one thing followed the other as a natural consequence of all that had gone before?

Not only was your information fuller, but it also stuck in your mind because it was so much more interesting. Its appeal was not merely to memory, but to reason and imagination as well. If the teacher be one who is satisfied with a mere recitation of the words of the book, how much richer is the scholar who has someone at home who will put a touch of human interest into the thing, and open his mind to whys and wherefores.

### Help That Hinders Growth

But when it comes to the kind of assistance that is often simplest to give—as for instance, working the problem in arithmetic yourself and letting Johnny write down the result—hardly too much can be said against such a system. If he does not understand the principles of the calculation, if no reason enters into it so far as he is concerned, what has he gained but a good mark which is a false indication of his ability? Such unearned credit is as injurious to his moral standards as to his mental independence.

It is probable that most parents who give up their evenings to what they believe to be best for their children, are too indiscriminate in their help. Children should think out their own problems, set down their own conclusions, bear the punishment of their ill-done work, or enjoy the consciousness of having themselves done that work well. Keep your help for the subject that is plainly too puzzling for the immature mind. Give the word that may stimulate thought, or the amplification that may illuminate the text.

Home help with the lessons is largely a question of the good judgment of the parent. The nature of the child must be taken into consideration. If he be lazy and inclined to shift personal responsibility, then he should be thrown on his own resources more strictly than the child who is eager and ambitious, and who makes use of all his own powers as well as of the help that is given him.

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HORTICULTURISTS have been hearing considerably lately about the work of J. K. Shaw of the Agricultural Experiment Station, Amherst, Massachusetts, along the lines of "Leaf character studies of apple varieties." This is the title of Bulletin No. 208 which is available for distribution. The author has shown photographs and systems of studying leaves to aid in the identification of trees. This will be of especial interest to nurserymen and students of systematic pomology.

**3854. An "Easily Made" Frock.**

This becoming "Slip On" model has smart jaunty lines, and a choice of sleeve finish one may have fitted in wrist length style, or with cuff in elbow length. Serge in blue or brown is nice for this dress, as is also velveteen or prunella. Collar and cuffs or organdie or linen will be a pleasing variation.

The Pattern is cut in 5 Sizes: 6, 8, 10, 12 and 14 years. A 10 year size requires 2½ yards of 44 inch material.

A pattern of this illustration mailed to any address on receipt of 10c in silver or stamps.

**4201. A Popular Play Dress.**

This simple version of the "Romper" fashion will readily appeal to the busy home dress maker, because of its easy development, and comfortable lines. Gingham was selected for this style with white linene for collar and cuffs. The sleeves may be in wrist or elbow length.

The Pattern is cut in 4 sizes: 2, 3, 4 and 5 years. A 3 year size requires 2½ yards of 27 inch material.

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**4209. A Stylish Coat Style.**

Black velvet and squirrel fur are here portrayed. This is a good model for broad cloth, velours, and other cloakings. The collar is convertible. It may be turned up high, or rolled low with the fronts open.

The Pattern is cut in 5 Sizes: 6, 8, 10, 12, and 14 years. A 10 year size requires 2¼ yards of 54 inch material.

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**4212. A Pretty "Draped" Gown.**

Figured silk is here portrayed, with crepe for collar and cuffs, trimmed with bands of metal ribbon. This model is in slip on style. Waist and skirt portions are draped in soft folds. The sleeve is a new model.

The pattern is cut in 3 Sizes: 16, 18 and 20 years. A 16 year size requires 4⅞ yards of 40 inch material. To make collar and cuffs of contrasting material will require ⅝ yard 36 inches wide. The width of the dress at the foot is 2¾ yards.

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**4213. A Charming Apron Model.**

Always seasonable and never out of Fashion is the apron—and there is no version of this popular garment more practical and simple than the "one piece" style here portrayed. Cretonne with a finish of rick rack braid was used in this instance. Sateen and percale also are desirable materials.

The Pattern is cut in 4 Sizes: Small, Medium, Large and Extra Large. A Medium size requires 3⅝ yards of 36 inch material.

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**4217. A New Frock with Pleasing Style Features**

Circular skirt sections are set low over a panel front and long waist sections, on this desirable model. The square-cut neck is especially becoming to stout figures. This sleeve is new and attractive. Broad cloth, with bands braided with soutache was used in this instance. Panne velvet, or serge would be equally pleasing.

The pattern is cut in 7 Sizes: 36, 38, 40, 42, 44, 46, and 48 inches bust measure. A 38 inch size requires 3¾ yards of 54 inch material. The width at the foot is 3½ yards (with plaits extended).

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## Horticultural Digest

### Cyclopedia of Hardy Fruits

FOR years American pomological literature was rich in books dealing with systematic pomology or variety studies. There was a wealth of material furnished by such men as Coxe, Manning, Downing, Thomas, Hovey, Warder and others too numerous to mention. Unfortunately, their books were not revised in late years and have become sadly out of date. We have needed a new reference of this nature for some time and probably no man was better fitted to write this book than Dr. U. P. Hedrick of the New York Experimental Station, Geneva, N. Y., who is well-known to American pomologists as the author of such well-known books dealing with the systematic side of pomology as The Grapes of New York, Plums of New York, Cherries of New York, etc.

The Cyclopedia of Hardy Fruits is a book which should be of special interest and aid to fruit growers, nurserymen, county agents, or any others who would like to have a treatise which will aid them in the identification of varieties, which will serve as a guide in the choice of varieties, will tell when and where our leading varieties originated, point out in what regions the varieties described will grow best, and bring out such points as hardiness, susceptibilities or immunities, fungus diseases or insect pests, and will show in short the value of each leading variety of fruit grown in America for commercial marketing, for by-products or for home use.

Few people there are indeed who will not be reached by such an appeal. The book describes 104 species and 1200 varieties, contains 352 pages and has 16 colored plates and halftones and many line drawings and etchings. The volume is divided into eight parts, the first dealing with pome-fruits, including such fruits as the apple, pear and quince; part two dealing with drupe-fruits, including the cherry, apricot, nectarine, peach and plum; the third part dealing with grapes; the fourth dealing with brambles, including raspberries, blackberries and dewberries; the fifth dealing with currants and gooseberries; the sixth dealing with health fruits, such as cranberries and huckleberries; the seventh dealing with the strawberry, and the eighth including miscellaneous fruits, such as persimmons, pawpaws, barberries, etc.

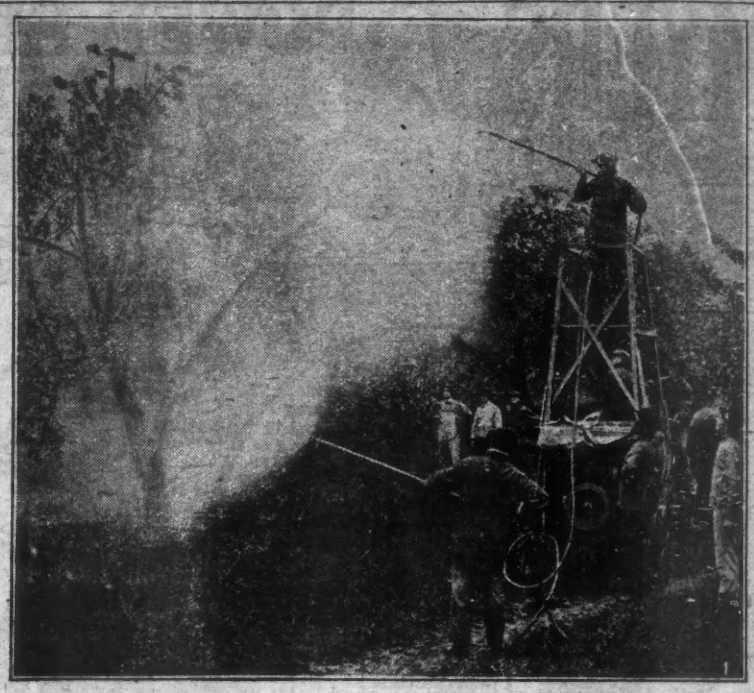
The book is well bound in cloth, published by the MacMillan Co. of New York and sold for $6.00.

---

A RECENT book just off the press which will interest students of horticulture, as well as fruit growers, is entitled "Textbook of Pomology," by J. H. Gourley, Chief in Horticulture at the Ohio Experiment Station, Wooster, Ohio. Professor Gourley has had a broad experience in New Hampshire, West Virginia and Ohio, and is well qualified to write a treatise o this kind. The purpose of the book is not to get out a complete manual on fruit growing or on the entire subject of pomology but to treat more on the physiological or functional side of fruit growing, eliminating botany, taxonomy, plant pathology and insect studies. The book does not attempt to tell how to grow fruit; it dwells more on fundamentals and gives a resume of the best work that has been done by the American experiment station in the last two decades. The book is valuable in that it gives on each page the references which are quoted so that a student of horticulture may look these up at his leisure and go into the subjects very thoroughly. Some fifteen chapters are devoted to the following subjects: Composition of fruits; Buds of fruit trees; Differentiation of flower-buds; Factors which influence fruit-bud formation; Pruning; Thinning of fruit; Orchard soils; Cultural methods in orchards; Fertilizers and manures for the orchard; Relation of climate to Pomology; Winter injury; Pollination and sterility problem; Origin and improvement of fruit; Propagation and fruit stocks; Storage of fruit.

The chapters which will especially

(Continued on page 31)



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The newly perfected spray nozzle—made of ⅞ inch brass tubing—in 4½ and 5½ foot lengths. Has the same capacity and all adjustments of any spray gun with a 45 degree angle or the old style bamboo rod and weighs approximately 4½ pounds, ready for attachment to hose.

With the angle and the added length it is possible for the operator to reach the under limbs or over the tops of trees in any orchard or grove with a fine wide spreading mist without any extra adjustment—and with a very slight turn of the handle at the lower end you can make any adjustment desired as well as shutting off flow completely.

While using you have the maximum capacity of the spray gun and there is also a big saving of material over other guns—due to the fact that you positively get to the tops of trees with full coverage with the Keith Angle Spray Rod—instead of the long coarse drive spray as with other guns and owing to the length it is much easier to operate than other guns or the old bamboo rod.

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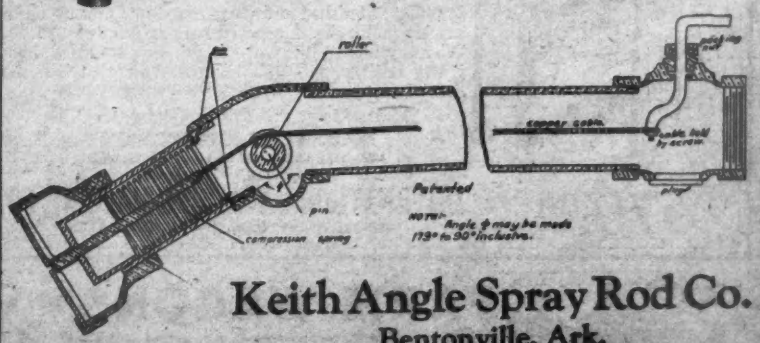


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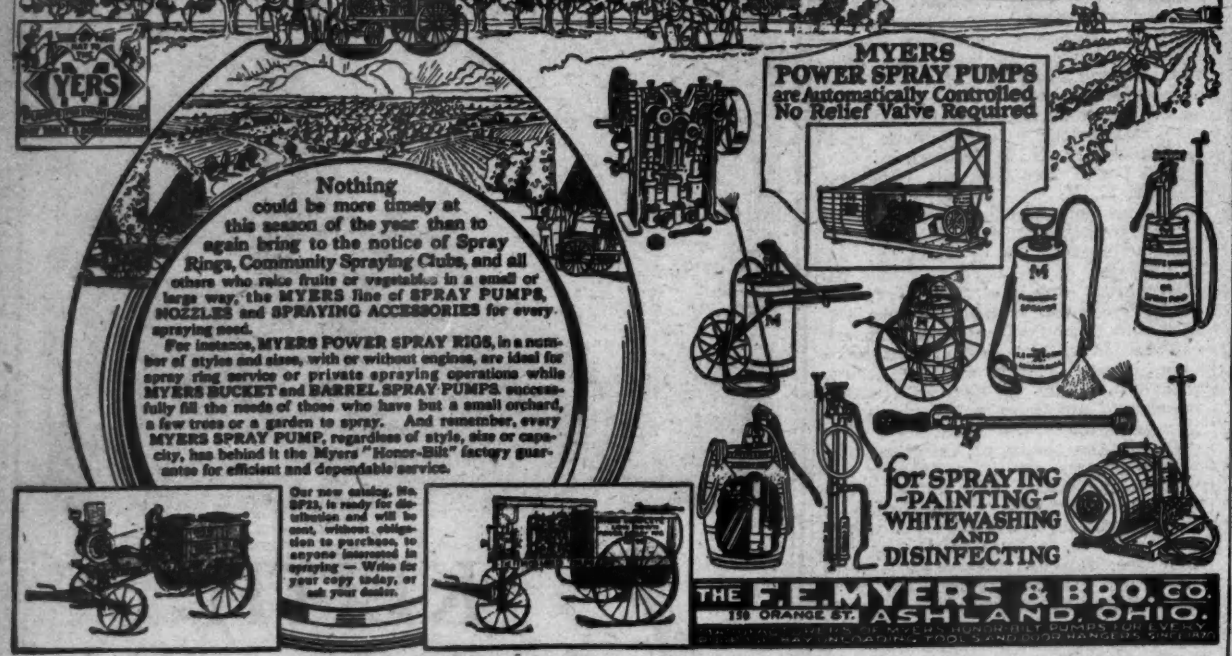


Nothing could be more timely at this season of the year than to again bring to the notice of Spray Rings, Community Spraying Clubs, and all others who raise fruits or vegetables in a small or large way, the MYERS line of SPRAY PUMPS, NOZZLES and SPRAYING ACCESSORIES for every spraying need.

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Our new catalog, No. SP23, is ready for distribution and will be sent, without obligation to purchase, to anyone interested in spraying — Write for your copy today, or ask your dealer.

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Any poultry raiser can easily a quickly double his profits by doubli his egg yield through the remarkab discovery of M. B. Smith, a Kans City chemist.

Workin along entire original lin Mr. Smith d covered w h hens lay less winter than summer and pe fected a formu that turns loafe into layers a profit makers.

Within five or six days this discover which is called Ditto Egg Tablets, w rejuvenate your flock. Your hens w go strutting and cackling about with r combs and full of life and pep. Eve nest will yield an egg nearly every d in the week, which means a lot, sin eggs are certain to sell for 60 cents more. This is not guess work as ov 100,000 successful poultry raisers testi to the value of Mr. Smith's products.

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Send no Money—just your name a address to M. B. Smith, 1249 Coca Co Bldg., Kansas City, Mo. The two packages will be mailed immediatel When they arrive, pay the postman on $1 and postage. Use the tablets 10 day If you are not getting more eggs or a not satisfied for any reason, simply re turn unused tablets and your money w be returned immediately without que tion. A big Kansas City bank guaran tees the reliability of this offer. Writ today before this introductory offer i withdrawn, as you can sell one packag to a friend and thus get your own fre —Adv.

## Co-operation Pays

THE stabilizing influence of co-operative marketing is the thing that has established land values in Southern California and held them steady.

This is the opinion of Frank Wiggins, secretary of the Los Angeles Chamber of Commerce, who has been sitting up with fruit crops on cold nights and holding a parasol over them on hot days for nearly thirty-five years.

Secretary Wiggins states that Los Angeles County produces and markets $65,000,000 worth of agricultural products in a single year—more than any other county in the United States—and you can charge most of it up to the success of our cooperative marketing organization.

"Where do you suppose our land values would be if it were not for the cooperative marketing? We've lifted raw lands out of the slough of despondency and put them on a dividend-paying basis at values ranging from between $500 and $1,000, and even up to $2,000 per acre.

"Cooperative marketing enables the growers to control practically all the acreage devoted to any one farm crop. This keeps the product out of the hands of speculators, and the cooperative organization can pass the product more directly to the consumers, eliminating middlemen, reducing overhead expense, and keeping the market on an even keel.

"When it becomes known that growers of any crop are marketing their own product, the public begins to regard that industry as safe and sound investment because a reasonable return may be expected year after year from lands valued up to a price within reason.

"My honest opinion is that had it not been for cooperative marketing as it has been practiced by such organizations as the citrus, raisin, prune, apricot and walnut growers in Southern California, land values to-day would not be nearly so stable as they are."

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**Just Out**

The finest Book on Strawberry growing ever published. Written by America's foremost grower. Gives his secrets of growing the big crops. Beautifully illustrated in colors and describes the world-famed

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A new oil lamp that gives an amazingly brilliant, soft, white light, even better than gas or electricity, has been tested by the U. S. Government and 35 leading universities and found to be superior to 10 ordinary oil lamps. It burns without odor, smoke or noise—no pumping up, is simple, clean, safe. Burns 94% air and 6% common kerosene (coal-oil).

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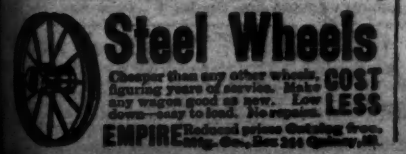

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## Mechanical Preparation of Oranges for Market

(*Continued from page 6*)

duced in this state, present indications being that it will run to large sizes and will be of exceptional quality. This is due to unusual seasonal conditions, as the prolonged Spring drouth followed by the copious rains of May caused a heavy bloom in this month continuing over until the June bloom, thus extending the bloom period and also causing a more than ordinarily heavy set of young fruit.

### Acreage is Large

The number of acres set with bearing citrus trees in Florida is estimated at 140,000 and the number set with young trees which have not reached the bearing stage is approximately 60,000. On the 200,000 acres there are about 10,250,000 bearing trees and 4,000,000 non-bearing trees.

Grapefruit has only been grown commercially in Florida for twenty-seven years but there are orange trees here which were planted before the Seminole War in 1837. There is one enormous orange tree on the banks of the Indian River called the "Mother Orange." It is said to be one hundred and fifty years old and bears from two hundred to three hundred and seventy-five boxes of fruit a year. Spain, however, boasts of orange trees from two to six hundred years old which still pay a net profit of ten per cent on a valuation of five thousand dollars per acre which have been steadily producing through these many generations.

The area in which grapefruit can be successfully grown in the United States is limited to a few counties in Southern Florida. Dr. J. H. Ross, president of the Florida Citrus Exchange, has made the statement that, "If every available acre of land suitable were now planted and producing, the entire production could not exceed twelve million five hundred thousand boxes per annum. If only one box were used to each family in the United States per year, it would take twenty-five million boxes to supply the demand. The present production of grapefruit is only two million five hundred boxes per annum."

## Horticultural Digest

(*Continued from page 28*)

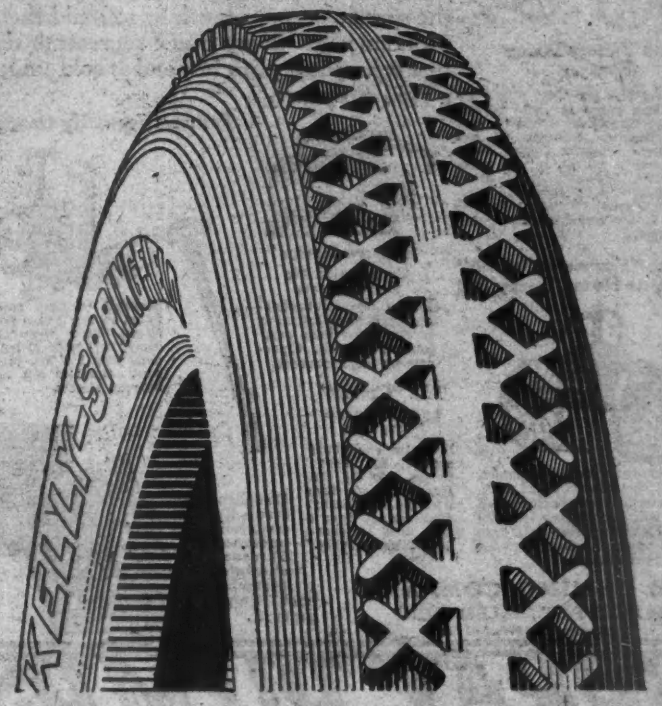
interest fruit growers are those dealing with the buds, pruning, thinning, orchard soils, cultural methods and fertilizing. While the book has been written primarily as a textbook for students in horticulture in agricultural colleges, it will prove to be a very valuable book to have in the fruit grower's library because, after all, every fruit grower should first study the fundamentals and know how plants grow and what factors influence their growth. He can then shape his orchard practices and bring about whatever results he desires. To a thinking man, such a book is more valuable than one which is devoted primarily to orchard practices and dwells less on fundamentals.

The price of this book is $2.60 and it can be purchased of The MacMillan Company, Publishers, New York.

## Nut Prices High in Italy

ITALY'S 1922 almond crop has proven to be an excellent one and will probably reach about 15,000,000 kilos, says Consul E. I. Natuan, Palermo, in a report to the Department of Commerce. Filberts are a disappointment, owing to heavy frosts and winds during the flowering season, and will not exceed 6,000,000 kilos. Two million kilos of last year's filberts are still on hand, and not more than 500,000 kilos of almonds; 33,600 kilos of pistacchios are expected. Prices of almonds will remain high for some time, due to the heavy committments of some of the largest exporters in Sicily, who speculated on old stocks. Owing to the small carry-over these committments will have to be met from the new crop.


# It costs no more to buy a Kelly

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Until quite recently they sold at considerably higher prices than tires of other makes.

Now, with the completion of a huge new plant, Kelly prices have come down. More efficient manufacturing processes have enabled us to build even better tires. Greatly increased production has made it possible for us to sell them at lower prices.

Your Ford, your Dodge or your Buick deserves the best tires you can put on it, and now you can buy them for no more than you would have to pay for tires of ordinary standard make.

Particularly if you drive a closed car, with its heavier body, you need tires that will stand up. Kelly Kant-Slip Cords not only will stand up but will give you protection from skidding to a degree that no other tire we know of will.

Try one Kelly. You'll never regret it.

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"A PEMCO SPRAY" Keeps Germs Away

PEMCO

The mechanical flushing out of the nasal passages prevents infection and disease and prolongs life as the nose is the most fatal portal of entry of infection into the body. PEMCO Nasal Spray is prescribed by leading physicians. It prevents colds and clears the head and nose.

PEMCO is a solution of menthol, oil of eucalyptus, and creosote in liquid petrolatum.

SPECIAL OFFER For a limited time only—we will send a ONE DOLLAR bottle of PEMCO together with a famous all-odorless vulcanized rubber comb and a book for the small sum of $1.00. Send your order today.

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Pot-grown rose bushes, on own roots, for everyone everywhere. Plant any time. Old favorites and new and rare sorts, the cream of the world's productions. "Dingee Roses" known as *the best* for 72 years. Safe delivery guaranteed anywhere in U. S. Write for copy of Our "NewGuide to RoseCulture" for 1923. It's FREE.

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HAND AND POWER PUMPS FOR ALL USES

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*New Victory Power Sprayer*

All features you want at a price you can afford to pay. Strong, compact and light weight for easy handling on hillsides or soft ground. Powerful Duplex Pump delivers 1½ gal. per minute under 300 lbs. pressure; Chain drive; Friction clutch; Automatic Pressure Regulator; "New War" 5 H. P. air cooled motor. Bosch magneto.

**The "Farmer's Friend" One Horse Spray Rig**

Hardwood platform and shafts. 3" tired steel wheels, 50 gal. tank. Easy-working, powerful hand pump will supply two leads of hose. Converted into field crop sprayer by simply adding Deming 4 Row Spray Boom.

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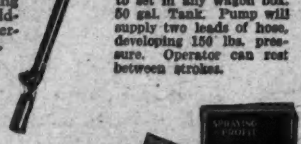

Mounted complete ready to set in any wagon box. 50 gal. Tank. Pump will supply two leads of hose, developing 150 lbs. pressure. Operator can rest between strokes.

*Spraero Junior*
**Compressed Air Hand Sprayer**

The handy outfit for berries, hedges, disinfecting or the many little odd-jobs of spraying. Operates by finger control.

**The "Comet" Long Distance Spray Gun**

Use with any power outfit. All brass; weight only 2½ lbs. Interchangeable discs changes capacity. Grip control, from a fine mist to coarse long distance spray.

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**Don't Pay Freight On Water!!**

# Niagara Soluble Sulphur Compound

*(In Powdered Form)*

For ten years acknowledged by Fruit Growers in the United States and Canada as

## The Best Dormant Spray

for the control of San Jose Scale, Peach Leaf Curl, and other orchard troubles.

*This Comparison Shows its Economy*

**100 lbs. of Niagara Soluble Sulphur Compound is equal to a 600 lb. barrel of Lime Sulphur Solution.**

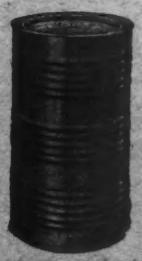
A 100 lb. drum is easier to haul and handle. There is no freight to pay on 500 lbs. of unnecessary weight—no barrel to return—no leakage—no evaporation—no crystallization—nor loss from freezing. Air-tight drums keep Niagara S. S. C. indefinitely. Every pound paid for is a pound of effective spray material with no solid matter to clog valves, sieves, pumps, and nozzles.

Niagara S. S. C. controls San Jose Scale, Peach Leaf Curl and other scale insects. Results are what count! You get them with Niagara S. S. C. Clean your orchards now and give your trees a chance to produce quality fruit for the next crop. See your dealer or write for Soluble Sulphur booklet today.

**Niagara Sprayer Co., Middleport, N. Y.**

*Pioneer Manufacturers of Dusting Machines and Materials*

One man handles the 100 lb. drum



100 lb. Drum

Three men necessary on the 600 lb. barrel


## How I Grow Currants

By M. E. Underwood

IN MY experience in growing the red and black currants I have found that there is very little difference in their culture. The blacks will grow on almost any soil but for the best growth they should be planted on rich clay loam which is retentive and well drained. The soil must be well drained to allow early cultivation in the spring and must be retentive so as to conserve a sufficient amount of moisture to swell out the fruit.

For best results the reds require a soil of a lighter nature. A rich sandy loam which is well drained and retentive has proved the best for me. Both classes are propagated from cuttings which are made from the present season's growth. These are made about eight inches in length and trimmed off at the base of a bud at which point the callousing processs is the most rapid. I make cuttings early in the fall as soon as the wood is ripe and plant immediately in nursery rows. In a favorable season they will root and be ready for growth the following spring. They are covered with strawy manure to prevent heaving by frost.

### Carefully Select Plants

I am careful to select plants which have a large fibrous root system and a thrifty looking top. A good two-year-old is better than a one-year-old because it has a larger root system. Good thrifty one-year-olds however can be depended on to keep right on growing providing they are given good care. I prefer fall to spring planting for the reason that currants leaf out and start into growth very early and if the ground is wet in the spring as it often is and planting is delayed the currants will receive quite a setback. I have seen them planted when in full leaf but they did not do well. By planting in autumn they become established before winter sets in and are ready for business when spring comes. They should not be pruned at all until spring. My bushes are five feet apart in the row and the rows are seven feet and nine feet apart. This allows plenty of room for them and also for cross cultivation.

Starting on one side of the field plant three rows seven feet apart and then there should be a space of nine feet and then another three rows seven feet apart, etc. This provides plenty of space for the spraying machine. Even if one does not intend to use a large sprayer it is well to have the spaces wide enough to drive a manure wagon through as driving over the top of bushes is certain to cause injury to the buds. Thorough cultivation is essential. In the fall I plow up to the bushes and thoroughly furrow out the ground so that no surface water will remain on it. The field will then be in good condition to stand the winter. In the spring I begin cultivation just as soon as the ground can be worked well. A good implement to use is a two-horse spring tooth cultivator which works the soil up into fine particles. Cross cultivation can be done with a one-horse spring tooth cultivator.

### Cultivate Often

I cultivate once about every two weeks until after the crop if off then cease cultivation. This gives the young succulent wood a chance to ripen up before winter sets in. If manure is applied it should be put on in the fall and plowed down so as to be partially rotted and available as plant food when growth starts in the spring. It is, of course, important to keep an eye out for the pesky currant worm and other insects as the fruit will not mature properly when the foliage is injured by them. Good spraying is all that is necessary to prevent their harmful operations. Proper pruning is essential but not difficult. The black varieties bear their fruit on wood of the preceding season's growth. As the bushes become older the size of the fruit deteriorates. Red currants bear their best fruit on wood that is two years old and I do not allow canes to remain longer than five years. Pruning may be done at any time after the leaves fall but I usually do it in late winter. No set rule can be laid down as many different conditions are met with and a good deal of common sense and judgment has to be exercised. Canes which have passed the age of greatest productiveness should be removed and young ones allowed to take their place.

### Remove Broken Branches

Broken branches and those too close to the ground should also be removed. Young vigorous branches should be headed back to encourage the production of fruit spurs all along their length. This is particularly true of varieties which have a tendency to produce their fruit spurs near the end of the branches as when the bushes are heavily laden with fruit they are likely to be borne to the ground thus allowing the fruit to become spoiled. Young plants should not receive much pruning for three years except to cut back about two-thirds of the growth each year to encourage the development of fruit spurs. With good care and attention a currant plantation will yield for twenty years or more.

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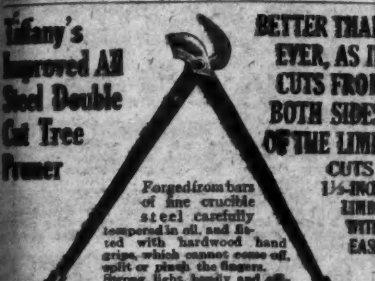

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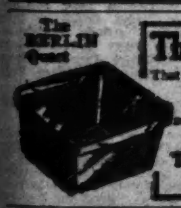

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## Grand Traverse Packing Company

ASK almost any progressive fruit grower or business man well versed with conditions in the Grand Traverse district, and he will tell you that the safety valve of the red cherry business in that district has been the Grand Traverse Packing Company. This organization, while not purely co-operative, nevertheless functions very much the same as a co-operative and brings, to a large extent, the same benefits. This organization is really a large, joint stock company, with some three-hundred fruit growers holding stock. Two hundred and fifty thousand dollars worth of stock is represented in the company, of which $225,000 is common and is held very largely by the three hundred fruit growers. Only some $25,000 worth of the stock is preferred and the preferred stock can be retired any time within ten years. It draws 8%, with a premium of 5%. The organization is to be congratulated when they state that they feel they can get along without the issuing of any more preferred stock. As far as the common stock is concerned, it is issued very largely on the basis of acreage, the aim of the company being to make it as representative as possible.

The company has acquired a very valuable piece of property with a good water frontage, where they hope later to build a cement pier so that they can operate launches up and down the shore and bring in large quantities of cherries, and they also have very good trackage to their various buildings.

Three modern, fire-proof structures have been erected. A three run cannery is the backbone of the equipment and it is planned this next year to add another run to the cannery. This cannery operates about twelve pitters. In addition to these, however, the company has six pitters at Beulah and North Port. About 90% of the fruit is put up in number 10's and sold under the company's own brand (Montmorency Brand).

A separate, fire-proof warehouse in which most of the stock is stored, is a valuable acquisition to the company. It means they can borrow money on the stored canned goods, on the basis of warehouse receipts, as it is very easy to bond this warehouse. This is the way that most of the western organizations carry out their financing. The cold storage plant is the largest and most expensive owned by the company. It can handle 2,000,000 pounds of cherries and 8,000 barrels of apples. It is strictly modern in construction, has two 40-ton Ice Machines, and the rooms are chilled with ammonia, the air circulation being produced by a fan system. A modern suite of offices is also provided at the cold storage plant. All three buildings which the company owns are fire-proof and modern in construction, vitrified tile having been used in the construction of all.

The manager is Mr. W. A. McCool, who is seemingly doing very efficient work. His problem is far from being an easy one, since he had to live down two previous co-operative failures in the district. Mr. McCool figures the average yield of the district to be something around 200 cases of 25 pounds each, and under average conditions one could count on two cases per tree. He is developing a very fine business in frozen or chilled cherries, both in barrels and in crates. About two-thirds of the cherries he handles are Montmorencies. The fruit is hauled in rapidly from the Beulah Station by auto trucks, and is brought in from North Port in iced cars. If the red cherry business of the district really comes into its own it will have to thank the Grand Traverse Packing Company for its pioneer work. It has been estimated that last spring alone, 75,000 red cherry trees were planted north of Frankfort, Michigan.

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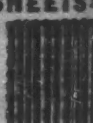

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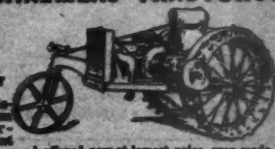

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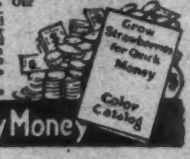


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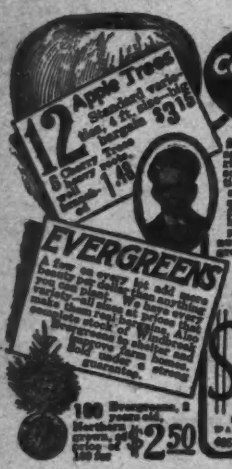

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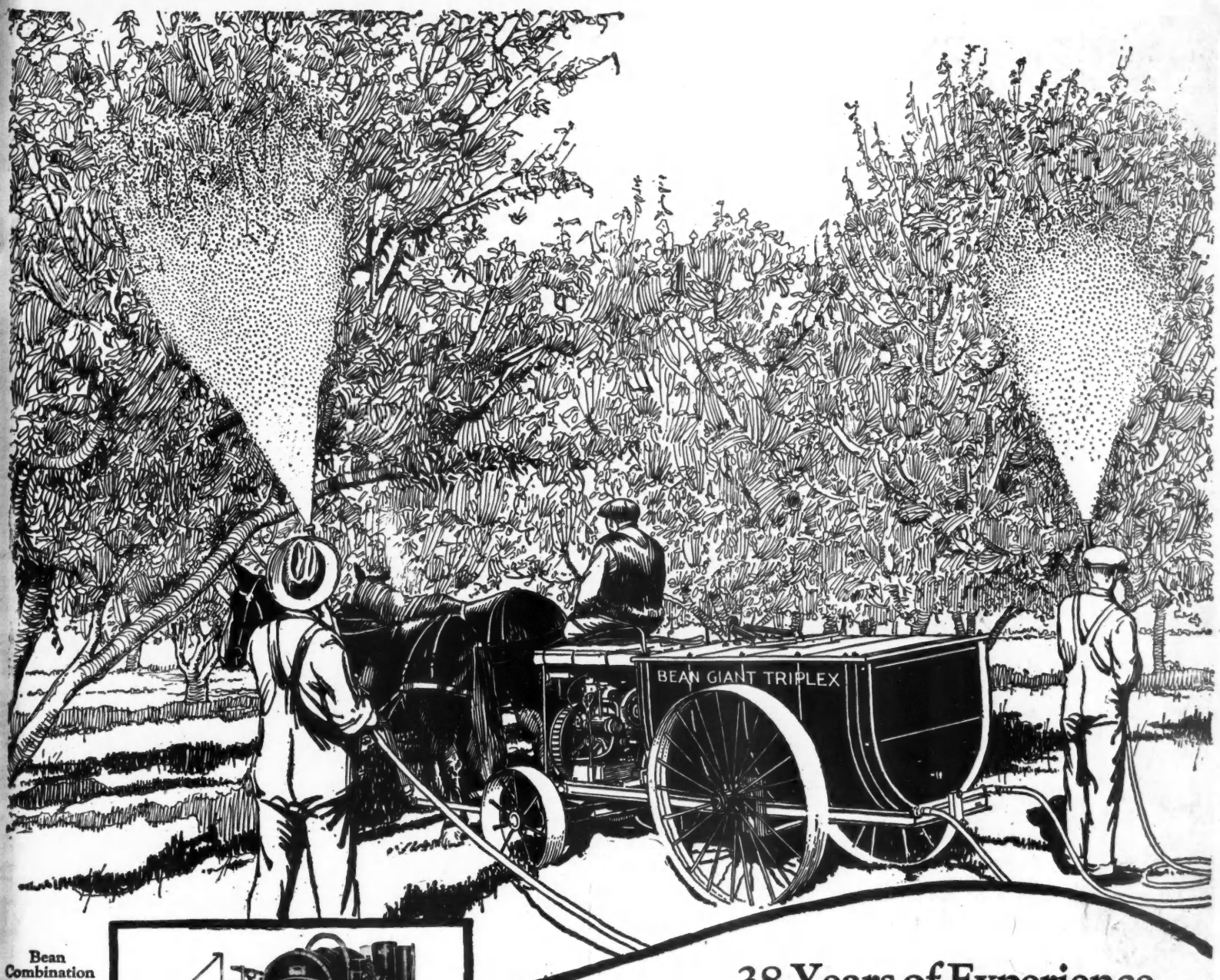


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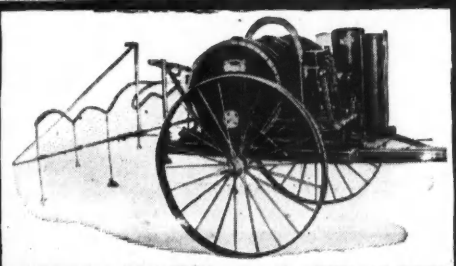

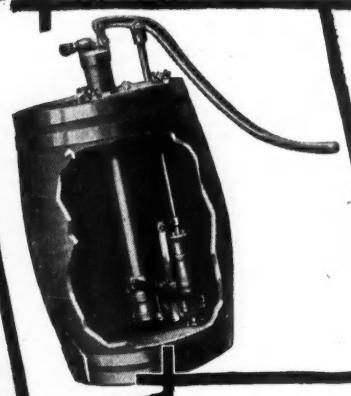

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